

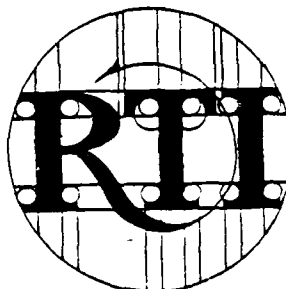
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A DETERMINATION OF ELIGIBILITY
TO THE
NATIONAL REGISTER OF HISTORIC PLACES

FOR
SELECT HISTORIC PROPERTIES
ALONG THE SOURIS RIVER
IN NORTH DAKOTA



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A DETERMINATION OF ELIGIBILITY
TO THE
NATIONAL REGISTER OF HISTORIC PLACES

FOR
SELECT HISTORIC PROPERTIES
ALONG THE SOURIS RIVER
IN NORTH DAKOTA

THREE EARTHFILL DAMS (NOS. 83, 87, AND 96)
AND CCC CAMP MAUREK
ON THE
UPPER SOURIS NATIONAL WILDLIFE REFUGE

AND

FIVE EARTHFILL DAMS (NOS. 320, 326, 332, 341, & 357)
AND CCC CAMP DING
ON THE
J. CLARK SALYER NATIONAL WILDLIFE REFUGE
in
Ward, McHenry, and Bottineau Counties
North Dakota

Prepared by:

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August 1989

Prepared for:

United States Army Corps of Engineers
St. Paul District
under contract DACW37-89-M-0443

MANAGEMENT SUMMARY

The St. Paul District of the U.S. Army Corps of Engineers has received authorization to the Souris River Basin Project, a flood control project for the Souris River in North Dakota. In regards to the Souris River Basin Project, the Corps of Engineers, with this study, has complied with the initial requirements of the federal regulations stemming from Section 106 of the National Historic Preservation Act of 1966 (as amended). The study evaluates the potential eligibility for listing on the National Register of Historic Places for select historic properties on the Upper Souris and the J. Clark Salyer National Wildlife Refuges in North Dakota. These select properties include eight earthfill dams and two CCC Camps. The study concludes that the eight refuge dams are eligible for National Register listing as a Multiple Property Group, and that the two CCC Camps do not meet registration requirements. However, in the course of this study, several other significant resources were identified at both the Upper Souris and J. Clark Salyer National Wildlife Refuges. As a consequence, the study further recommends that two refuges each most likely represent a historic district and that the eight refuge dams would be best treated for National Register listing as significant components of these districts. This study was completed by Renewable Technologies, Inc. of Butte, Montana for a lump sum of \$9,252.00, including all labor costs and expenses.

Approved For	
Project	X
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Inventory	
Assessment	
Recommendation	
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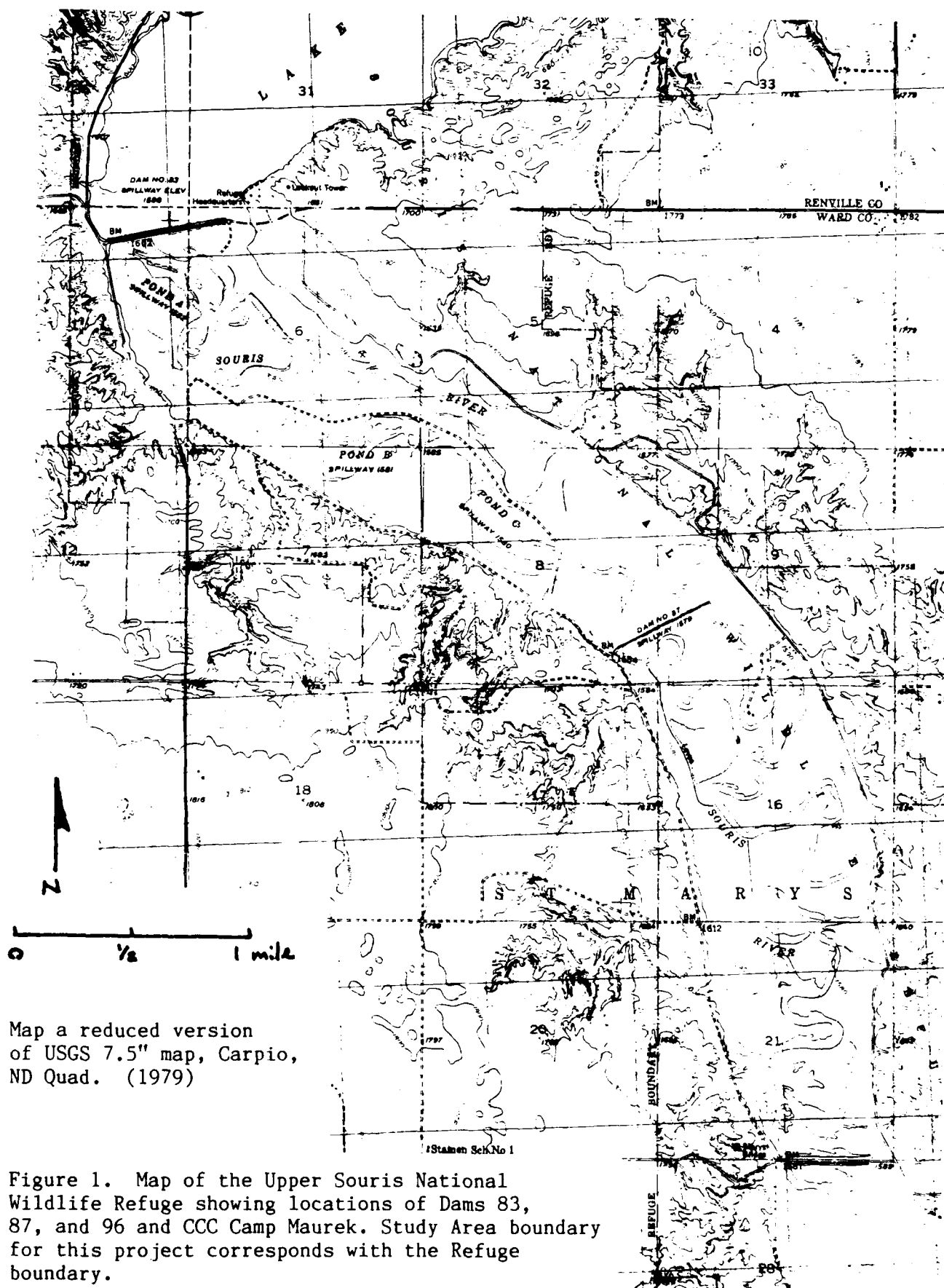
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J. CLARK SALYER NATIONAL WILDLIFE REFUGE UPHAM, NORTH DAKOTA

Produced by the
U.S. Dept of Interior
Fish and Wildlife Service
n.d.

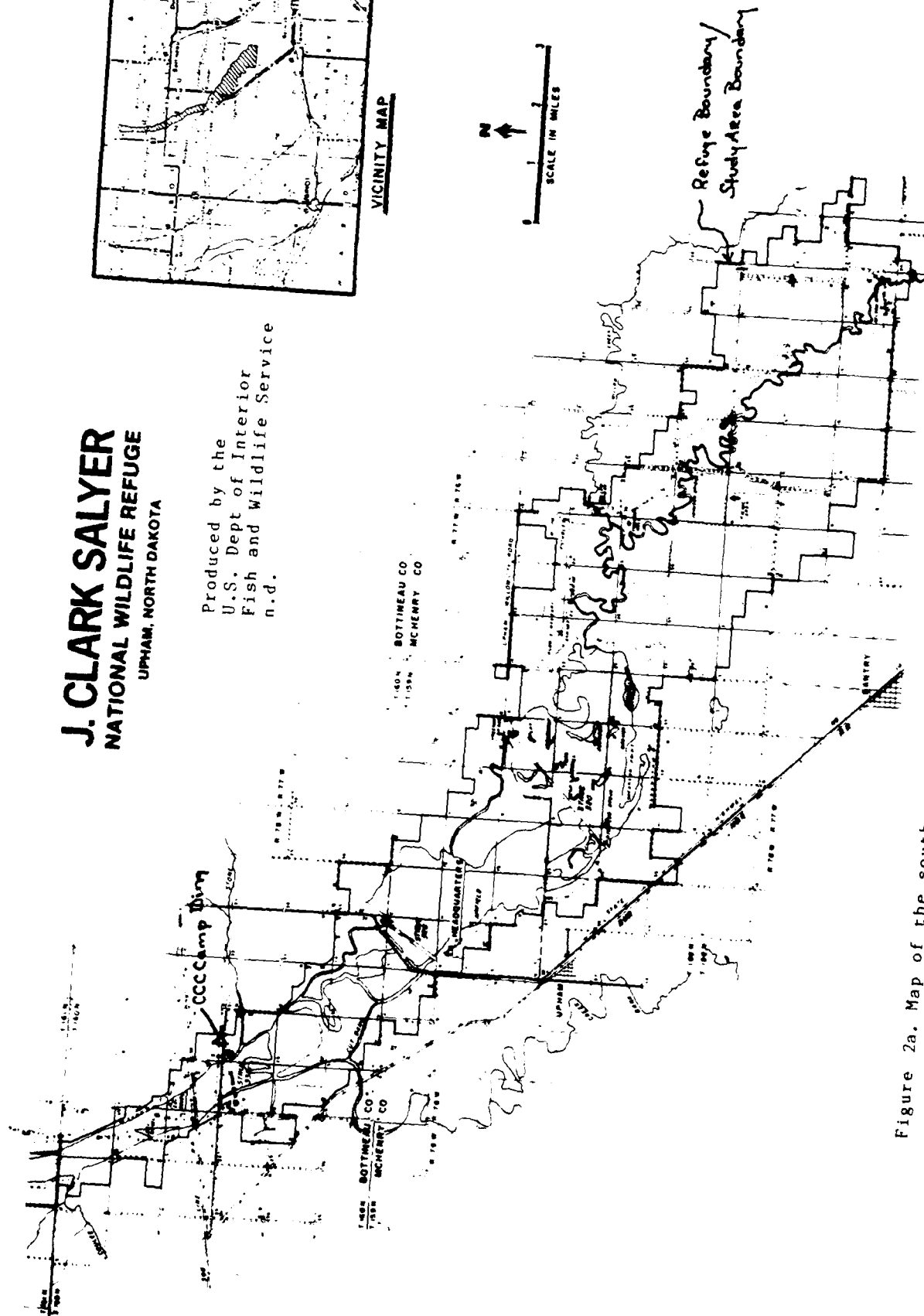
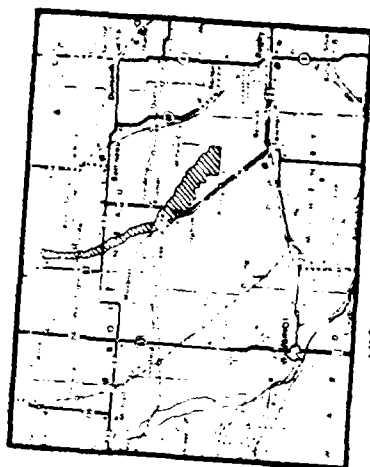


Figure 2a. Map of the southern portion of the J. Clark Salyer National Wildlife Refuge showing the locations of Dams 320, 326, and 332; and CCC Camp Ding. The Study Area boundary for this project corresponds with the Refuge boundary.

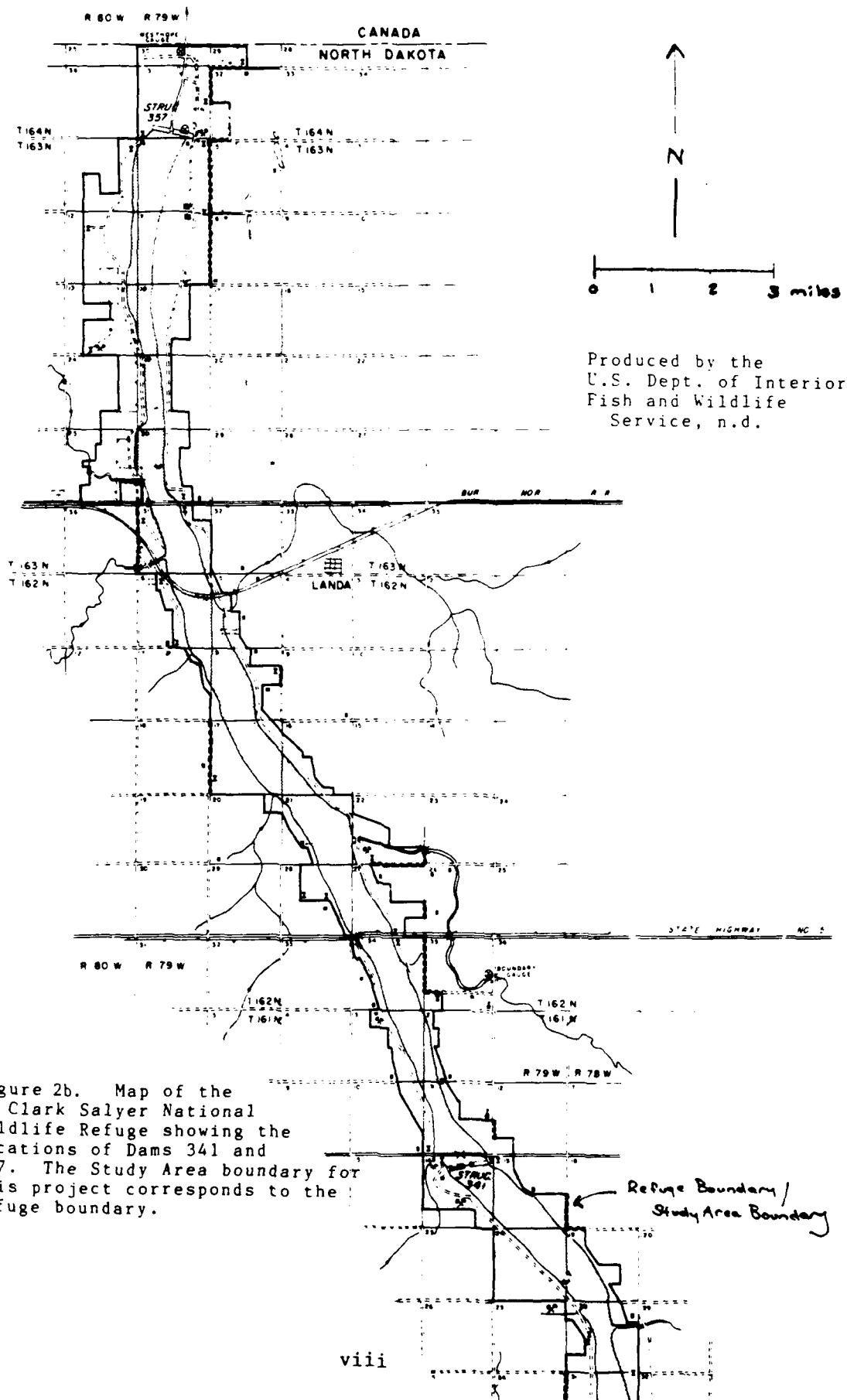


Figure 2b. Map of the J. Clark Salyer National Wildlife Refuge showing the locations of Dams 341 and 357. The Study Area boundary for this project corresponds to the Refuge boundary.

INTRODUCTION

The St. Paul District of the Army Corps of Engineers (Corps) has received authorization to the Souris River Basin project, a flood control project for urban and rural reaches of the Souris River in North Dakota. The project requires modification of five dams (Bottineau and McHenry counties) within the J. Clark Salyer National Wildlife Refuge, and three dams (Ward County) within the Upper Souris National Wildlife Refuge. Both of the refuges are administered by the United States Fish and Wildlife Service. To implement the Souris River Basin project, the Corps must comply with the provisions of the National Historic Preservation Act of 1966 (as amended) and with federal regulations 36 CFR 800 and 36 CFR 110 which require that federal agencies consider the impact of their actions on significant cultural resources (defined as those resources which are eligible for listing in the National Register of Historic Places). Therefore, the Corps on March 31, 1989 contracted with Renewable Technologies, Inc. (RTI) of Butte, Montana, to preform a cultural resource inventory and evaluation of select historic properties. These properties include the eight refuge dams, as well as two Civilian Conservation Corps (CCC) camp sites that were associated with their construction. Following is a list of these select historic properties:

Upper Souris National Wildlife Refuge (see Figure 1):

- Dam 83 - Sec. 6, T157N, R84W; and
Sec. 1, T157N, R85W
- Dam 87 - Secs. 8 & 9, T157N, R84W
- Dam 96 - Sec. 34, T157N, R84W
- CCC Camp Maurek - NE1/4, SE1/4 Sec. 6, T157N, R84W

J. Clark Salyer National Wildlife Refuge (see Figures 2a & 2b):

- Dam 320 - Secs. 17, 18, & 19, T159N, R77W; and
Secs. 24 & 25, T159N, R78W
- Dam 326 - Sec. 3, T159N, R78W; and
Secs. 34 & 35, T160N, R78W
- Dam 332 - Sec. 19, T160N, R78W
- Dam 341 - Sec. 14, T161N, R79W
- Dam 357 - Sec. 31, T164N, R79W
- CCC Camp Ding - Sec. 20, T160N, R78W

The general study area for the inventory is here defined as the regions included within the boundaries of the J. Clark Salyer and Upper Souris wildlife refuges. Historical settlement in this region has been associated primarily with agricultural developments.

This report presents the findings and results of the inventory of the select historic properties listed above. The reports provide a physical description of each of the properties; a discussion of their associated property types; and a summary of the history of the properties set within the context of wildlife conservation in the nation during the Great Depression. The report also evaluates the National Register significance of each select

property; and recommends which properties are eligible for National Register listing, which properties are not, as well as the type of listing for which eligible properties are best suited. Other information outlined in the reports includes a summary of previous historical investigations within the general study area, and a discussion of the project goals and the methodologies employed to achieve these goals. The report is intended to facilitate the Corps in its compliance with federal regulations for the protection of cultural resources, as well as to serve as resource for future professional studies. The report does not record or evaluate other historic properties associated with either the J. Clark Salyer or Upper Souris refuges.

Work for the inventory was designed in accordance with the Scope of Work (see Appendix A) outlined by the Corps. It involved multi-phase processes and was conducted in the spring and summer of 1989 by historians Mary E. McCormick and Fredric L. Quivik of RTI. Following is breakdown of tasks completed and the hours expended for each:

<u>Task:</u>	<u>Dates</u>	<u>Man Hours</u>
Field Investigations Salyer and Upper Souris Refuges	April 16-20	48
Research National Archives, Washington, D.C.	April 30, & March 1	16
Salyer and Upper Souris Refuges, Minot, Bismark	April 17-21	48
Report and Form Preparation	April 24- July 18	176

METHODOLOGY

The methodology for this project was designed to achieve two major goals of the Corps of Engineers (see Appendix A, Section 1.05). The first goal is to provide a planning tool to assist the Corps in meeting all legal requirements mandated by the federal government for the protection of significant cultural resources. The second goal is to develop an analytical body of scientific and historical information that can be used as a reference for future professional studies. The research objectives of the sponsor are to satisfy the initial phase in compliance with section 106 by evaluating the historical background and engineering or architectural features of the dams and CCC camps to determine if they possess National Register significance. In addition to accomplishing these research objectives on behalf of the sponsor, RTI's additional objective is to broaden its experience in the evaluation of historic engineering features. To date, RTI has evaluated dams used as part of hydroelectric generating stations and used for water storage on irrigation projects. This study provided an opportunity to evaluate dams used for restoration of wildlife habitats.

Architectural Historian Fredric L. Quivik and Public Historian/Archeologist Mary E. McCormick of RTI evaluated the eight refuge dams and two CCC camp sites by collecting on-site data, visiting various archives and other repositories to collect historical data, and analyzing the data according to the National Register Criteria for Evaluation (36 CFR 60.4).

Fieldwork for the project was limited to an on-site investigation of the eight of the refuge dams, and the two CCC camps. No other historic structures, buildings, or sites associated with either refuge were examined. (RTI did note the existence of other historic buildings and structures at the two refuges, however. Recommendations concerning any future evaluation of the National Register eligibility of these features are found in the Recommendations section of this report.) During these investigations, Quivik examined and photographed each of the dams and recorded their physical attributes and current condition. McCormick examined the CCC camps and identified and described all structural remains associated with each. Surface artifacts were also noted and described but no materials were collected. Site maps of the camps and their features were produced by pacing (with one pace equal to about three feet). Site boundaries for the camps were fully delineated and plotted on the USGS topographical quadrangle maps of the region. Quivik photographed the CCC camps, including general overviews, as well as details of particular features. No subsurface testing was conducted due to the sensitive and protected status of the refuge grounds.

Historical research for the project was conducted at the National Archives in Washington D.C., at the headquarters for both the J. Clark Salyer and Upper Souris wildlife refuges, at the North Dakota Historical Society in Bismark, and at the Minot State College Library in Minot, North Dakota. Research efforts focused on gathering information pertaining to the actual construction of the dams and CCC camps as well as background information concerning the development of both the J. Clark Salyer and Upper Souris wildlife refuges, and the national wildlife refuge system.

Sources researched included records held at the National Archives for the Civilian Conservation Corps and the U.S. Fish and Wildlife Service and its predecessor agency, the Biological Survey; project reports for both of the refuges which were initially produced (ca. 1935-1940) by the Bureau of Biological Survey, and after 1940 by the U.S. Fish and Wildlife Service; a variety of local newspapers; and several other government publications and secondary sources. Other important sources consulted were safety evaluation reports (generally known as SEED reports) produced for each of the dams by Fish and Wildlife Service engineers. The SEED reports describe the nature and dates of various alterations made to the dams since their construction and, and for a few of the structures, provide the original plans and specifications. In addition, the manuscript collections and site files at the North Dakota State Historic Preservation Office provided information on previous historical investigations in the general study area and on known cultural resources existing within the study areas.

Following the field work and historical research, the significance of each of the properties investigated was assessed according to the National Register's Criteria for Evaluation (36 CFR 60.4), which read as follows:

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. that are associated with the lives of persons significant in our past; or
- C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. that have yielded or may be likely to yield, information important in prehistory or history.

Results of these investigations are presented in the following sections of this report.

PREVIOUS HISTORICAL INVESTIGATIONS

No previous historical investigations have been conducted in the general study area for the J. Clark Salyer National Wildlife Refuge region of this project. North Dakota site files do not record any cultural resource sites within the study area boundaries.

Historical investigations have occurred in the general study area for the Upper Souris National Wildlife Refuge region of this project. In 1977, the U.S Army Corps of Engineers, St. Paul District, contracted with the Department of Anthropology and Archaeology, University of North Dakota, for a archeological and historical resource inventory in areas of potential impact associated with the Burlington Dam Project. The investigation area defined for the inventory was an approximately 50 mile segment of the Souris River Valley, extending from the Canadian border downstream (south) to the proposed dam site just north of the town of Burlington in Ward County. Included within this area was the entire Upper Souris refuge. Historical investigations for the inventory were conducted in 1978 by Kurt Schweigert, Research Associate of the Department of Anthropology and Archaeology, University of North Dakota, and included a literature search as well as limited pedestrian and windshield surveys for select lands. Findings of the historical investigations were documented in a final report authored by Schweigert and submitted to the Corps of Engineers in 1979 (see bibliography for report citation).

The entire study area defined for this current project was surveyed by Schweigert with about two-thirds of it being covered by a pedestrian survey and the remaining areas being investigated by a windshield survey. Schweigert's work identified a single cultural resource site, CCC Camp Maurek (32WD413), but misnamed it as CCC Camp "Morlock." Four architectural features were noted at the site and were identified as CCC remains: three garages or shops, and a barrack. Site documentation was extremely limited and provided no historical background information. The four site features were simply described as rectangular wood-frame buildings with "unfitted" lap siding, asphalt shingled gable-roofs, and concrete foundations. Extensive alteration to each were noted but not detailed. The site assessment concluded that it "should be placed on the North Dakota Historic Site Register, but is probably not of sufficient gravity for nomination to the National Register of Historic Places."

HISTORICAL CONTEXT

INTRODUCTION

In the 1930s and early 1940s, the Federal Government undertook an extensive program to develop of a series of national wildlife refuges designed to restore and protect adequate breeding, feeding, and wintering habitat along the flight lines of migratory birds. By this time, decades of over hunting coupled with the loss of millions of acres of valuable habitat had greatly reduced the nation's once abundant migratory bird populations, and many bird species verged on extinction. Besides habitat restoration, however, the government also implemented the program to provide emergency relief work during a time of severe economic crisis, the Great Depression. One of the most critical refuge areas developed during this period was along the Souris River Valley in north-central North Dakota.

BACKGROUND TO DEVELOPMENT OF THE NATIONAL WILDLIFE REFUGE SYSTEM AND THE PROTECTION OF MIGRATORY BIRDS

A national refuge program to protect the country's wildlife resources was initiated by President Theodore Roosevelt on March 14, 1903, when he issued an Executive Order mandating the Federal Government to establish and administer a sanctuary for the brown pelican on Pelican Island off the east coast of Florida. Soon afterwards, in 1905, Congress established the Wichita Mountains Wildlife Refuge for the protection of the American buffalo. Another notable addition to the refuge system was made in 1908 when the government developed the Klamath Lake Reservation as the first migratory waterfowl nesting reserve.¹

Further measures to protect the nation's migratory bird populations came about in the following decade. The Migratory Bird Act of 1913 established Federal control over the hunting season for migratory birds. Congress strengthened this act in 1918 by passing the Migratory Bird Treaty Act, which called for the protection of birds migrating between the United States and Canada. Under this act, both countries agreed to protect migratory birds and jointly adopted such measures as outlawing spring shoots, limiting hunting seasons to 3-1/2 months, establishing uniform bag limits, prohibiting the sale of migratory birds, and removing several endangered species from game bird status.²

Congress delegated regulatory duties for Migratory Bird Acts of 1913 and 1918 to the Bureau of Biological Survey, an agency within the U.S. Department of Agriculture. Prior to this, the Biological Survey had little power to protect wildlife. Its functions primarily focused instead on determining the geographic distribution of animal, bird, and plant species, and conducting bird and animal food habit studies, with benefits to agriculture in mind. The Migratory Bird Acts not only strengthened the Biological Survey's protection powers, but also helped to establish it as a major force in the future development of a national wildlife protection system.³ (In 1940, the Bureau of Biological Survey merged with the Bureau of Fisheries to form the U.S. Fish and Wildlife Service within the Department of Interior).

Despite the protective action taken in the previous two decades, by the 1920s, migratory bird populations (waterfowl in particular) continued to decline and numerous species verged on extinction. This was largely due to the "agricultural boom" of the early 20th century when millions of acres of wetlands, mostly in the plains and western states, were drained for agricultural use, destroying more valuable waterfowl habitat. In the mid-1920s, the Director of the Biological Survey warned that, "The danger to the perpetuation of the stock of wildfowl is so great and so imminent...that there is the most vital need for all conservationists and lovers of wildlife to sink petty differences of opinion as to the details and to unite in constructive work to insure the future of our migratory gamebirds."⁴ In response to this and other pleas from wildlife conservationists, Congress passed two separate acts that established the Upper Mississippi River Wildlife and Fish Refuge in 1924, and the Bear River Migratory Bird Refuge in 1929. Also in 1929, the Migratory Bird Conservation Act was passed which authorized spending nearly \$8 million for the purchase or lease of refuges for waterfowl. Unfortunately, with the advent of the Great Depression most of these funds were never appropriated, greatly curtailing this effort.⁵

Not until the beginning of Franklin D. Roosevelt's administration in the early 1930s and implementation of his New Deal reforms did the nation provide the organization, funding, and manpower necessary to develop a refuge system adequate to protect its wildlife resources. By this time, the nation not only faced the worst economic depression in its history, but was also in the grip of severe drought. Particularly hard hit by the "dust bowl" conditions were waterfowl, as much of their remaining wetlands habitat had dried up and virtually disappeared. Depletion of their numbers was so great that one biologist feared "the winged millions" would never "reestablish themselves in all their early abundance."⁶

Roosevelt took action on the waterfowl crisis in early 1934. He appointed a special Presidential committee, consisting of Thomas Beck, Jay N. "Ding" Darling, and Aldo Leopold, to investigate means to restore the dwindling wildlife populations. Recommendations made by this "Duck Committee" called for more funding and restoration of nesting habitat. Darling was subsequently appointed Chief of the Bureau of Biological Survey, and he immediately initiated an all-out effort to develop a national wildlife refuge program.⁷

Surprisingly, Darling was not a trained biologist but rather a political cartoonist. Natural resource conservation, however, was a recurrent theme in his work, which was published in hundreds of newspapers across the country. Through his graphic depictions of the misuse and exploitation of soil, plant, and wildlife resources, Darling gained national prominence as a conservationist and won two Pulitzer Prizes. Darling also did much to influence the conservation movement in his native Iowa. He helped organize the Iowa Division of the Izaak Walton League of America, was a leading member of the nonpartisan Iowa Conservation Commission, and was instrumental in organizing the Iowa Cooperative Wildlife Research Unit, which was the first such group in the nation.⁸

Darling's first acts as the new Chief of the Biological Survey were to secure additional funding for migratory bird refuge development, reorganize the Bureau by adding new divisions, and hire new personnel. Within a matter of months, Darling was able to funnel to the refuge program \$8.5 million, primarily from funds earmarked for a variety of emergency relief programs. He also helped push through Congress the Migratory Bird Hunting Stamp Act which taxed duck hunters to create a fund to purchase refuge lands. One of the first new branches Darling established within the Biological Survey was the Division of Wildlife Refuges. To head this new unit, Darling selected J. Clark Salyer II, a young biologist with whom Darling had previously been associated in conservation projects in Iowa.⁹

BACKGROUND TO DEVELOPMENT OF THE SOURIS RIVER WILDLIFE REFUGE SYSTEM

In his new position, Salyer was delegated the tremendous task of building the nation's new refuge system. After careful review of previous studies of waterfowl migration, nesting, and feeding habits, it was decided to first rehabilitate and restore lost waterfowl habitat, including breeding sites, within the northwest region of the Mississippi Valley, or Central Flyway—one of the four great bird migration routes of the North American continent. This region was considered to represent some of the choicest, most productive breeding grounds in the country and included locations in North and South Dakota, Nebraska, Montana, and Minnesota. To administer and coordinate these activities, the Biological Survey in 1934 established a regional office in Minot, North Dakota, under the direction of Bernie Maurek.¹⁰ Of all the project areas considered in the region, the area believed to offer the most outstanding opportunity for re-establishing waterfowl populations was the Souris River valley in north-central North Dakota.¹¹

The Souris River and Historical Use of Its Marshes

From its source in the Mouse Mountains of Saskatchewan, Canada, the Souris River winds south into Renville County, North Dakota. From there the river meanders southeast into western Ward County where it begins a wide bend to the east before gradually turning north through McHenry and Bottineau counties and back into Canada. Altogether, the Souris flows 358 miles in through North Dakota, but drops only 215 feet, less than one foot per mile.¹² As a consequence, in its natural state, the Souris River maintained thousands of acres of marshes that were revitalized by the river's floodwaters each spring. In turn, these marshes provided prime feeding, nesting, and breeding grounds for migratory waterfowl. Early explorers and settlers in the Souris River Valley reported sightings of vast concentrations of birds including geese, swans, and cranes, as well as numerous species of ducks. One such account related that "in distant flight their masses often resembled huge clouds of smoke."¹³

Much of this natural bird habitat was destroyed during the early 20th century agricultural "boom" in North Dakota. In 1912, farmers in the area, eager for additional croplands, funded a project to dredge some 30 miles of the Souris River in Bottineau and McHenry counties to drain nearly 20,000

acres of its marshes. The cost of the project was high for the time, nearly \$10 for every acre affected.¹⁴ Much of drained marshland, however, was soon found unsuitable for the production of cash crops, such as wheat, and the project ultimately proved a dismal failure for most of the farmers involved. Landowners subsequently allowed most of the drained lands to return to native grasses used for hay. Unlike the marshes of previous years, however, the native grasses only thrived in years of heavy spring run-off when the Souris overflowed its banks and slowly inundated the valley. In relatively dry years, of which there were many, the grasses failed to thrive, causing both a meager hay crop and the loss of valuable waterfowl habitat. The long-term effect of the drainage project on the area's waterfowl populations proved disastrous. In 1924, E.T. Judd, the North Dakota Game and Fish Commissioner, commented on the situation by saying "...where ducks formerly bred in thousands, we find tens or none."¹⁵

Project Overview, and Involvement of the CCC

The Biological Survey's plan to restore the Souris River marshes called for developments along two separate stretches of the river. The largest, most extensive, and varied habitat area to be improved was ultimately to be a 58,700-acre refuge situated along the downstream reaches of the river in McHenry and Bottineau counties, and called the Lower Souris National Wildlife Refuge. About 220 river miles upstream, but only about 45 miles due west in Ward and Renville counties, a site was selected for the smaller, 32,000-acre Upper Souris Wildlife Refuge. (In 1967, the Lower Souris Refuge was renamed as the J. Clark Salyer National Wildlife Refuge in honor of J. Clark Salyer, II. To avoid confusion, the historical overview section of this report will primarily refer to this refuge by its historic name, the Lower Souris Refuge).

Creation of suitable wetland conditions at each of the refuges was to be achieved by construction of a network of low dams, as well as other water diversion structures including dikes and levees accompanied by spillways, control works, and channels. Wetlands established by this network of structures would consist of ponds, marshes, and wet meadows. Water developments within the Upper Souris refuge would also include creation of a large storage reservoir. To be christened Lake Darling, in recognition of Jay "Ding" Darling, this reservoir would serve to regulate and sustain water supplies to habitat developments downstream in both refuges. Formation of Lake Darling was also intended for flood control and to provide communities in the area, in particular the city of Minot which was located about 27 miles downstream from the proposed dam site, with a continuous source of fresh water. The U.S. Department of Agriculture's Bureau of Agricultural Engineering would design the system and prepare construction plans for all Souris River dams and other diversion structures.

Besides creation of wetland conditions, restoration work in the refuges also required reinstatement of wildlife foods and shelter as well as reclamation of the refuge grounds. For the manpower necessary to carry out these enormous tasks, the Biological Survey primarily drew on the Civilian Conservation Corps, or the "CCC". The CCC was one of several New Deal relief

programs enacted by the Roosevelt Administration in 1933 and was designed to provide emergency work relief to young men between the ages of 18 to 25. CCC activities mostly involved reclamation and conservation projects on public lands. Both the Department of the Interior and the Department of Agriculture were responsible for creating work projects for the CCC and providing the personnel to manage them, while the Department of the Army had the authority to establish and maintain the camps where the CCC enrollees were to reside. For his efforts, each CCC enrollee received \$30 a month in wages, of which \$25 was sent back home to his family.¹⁶

At the peak of CCC operations in North Dakota there were 16 camps.¹⁷ Of these, at least five were engaged in wildlife refuge developments under the Biological Survey, including Camp BF-1 (Camp Maurek) on the Upper Souris project and Camp BF-4 (Camp Ding) on the Lower Souris project. CCC forces from Camp BF-5 also conducted reclamation work at the Upper Souris refuge, primarily along the northern reaches of Lake Darling. Camp BF-5 was located outside of the refuge, in the town of Mohall, and it is not evaluated in this report.

CONSTRUCTION OF THE UPPER SOURIS WILDLIFE REFUGE DAMS AND CCC CAMP

Dams 83, 87, and 96

Work on the Souris River refuge system began with construction of a dam to impound Lake Darling, the large storage reservoir. This was to be the largest structure at the Upper Souris refuge site and was officially designated as Dam 83. In early March 1935, the Department of Agriculture advertized for bids for its construction, and the following month let the contract to the Hallet Construction Company of Crosby, Minnesota for a total of \$239,768.¹⁸ The Bureau of Agricultural Engineering's design for the structure called for a conventional, zoned, earthfill embankment with gated outlet works. Under the supervision of Construction Engineer J.R. Howes, the Hallet Company's work on the project progressed steadily over the following summer months. By late September, the earthfill embankment had been built, and the concrete work for the outlet structures neared completion.¹⁹ Meanwhile, construction had also begun on the two smaller dams at this refuge, Dam 87 and Dam 96, which were respectively located 2-1/2 and five miles downstream (or southeast) of Dam 83. Both of the structures were homogeneous earthfill embankments with gated outlet works, and their construction was also let to private contractors.²⁰

Although government engineers had hoped that Dam 83 would be entirely finished by the close of the 1935 construction season, some work still remained. By mid-April 1936, however, the dam was nearly complete except for some masonry work at the outlet, and Lake Darling reservoir was reported to be about a third full. At the end of the month, various government officials, including Ira Gabrielson, the new Chief of the Biological Survey, and members of the press gathered to witness the release of water through the control gates for the first time.²¹ In a speech following the ceremonies, Gabrielson proclaimed that together, developments at the "Upper and Lower Souris areas

represent one of two outstanding refuges in the United States."²² About a month later, on May 24th, the main gate at Dam 96 was fully opened and, "water raged down the empty [river] channel for the first time..."²³

About a year after the completion of the three Upper Souris dams, engineers with the U.S. Department of Agriculture published a two-piece article which provided instructions for the design and construction of dams suitable for public works conservation projects in North Dakota.²⁴ Although intended for smaller structures, the designs were quite similar to those for the three Upper Souris refuge dams, particularly in the use of stone masonry construction.²⁵ Stone masonry at the three Upper Souris dams include low masonry walls flanking the discharge channel of the spillway (a concrete weir with a concrete slab apron) at Dam 83 and 700-foot-long stone-masonry weirs comprising the spillways at Dams 87 and 96. In addition, stone masonry was called for in construction of the various spillways and diversion channels situated between the three dams.²⁶ Although extremely labor intensive, this type of construction proved cost-effective in situations where local materials and an inexpensive labor force were readily available.

The area's unemployed provided the necessary labor forces of the private contractors for construction work on the dams, and CCC forces were used to build the other spillways and diversion channels situated between the dams. Field stones used for the masonry work on the Upper Souris Dams were collected from a source near Foxholm, less than six miles from the dam sites.²⁷ On September 27, 1935, a local newspaper, the Minot Daily News, featured an article describing the stone masonry construction for the spillway at Dam 96. The account illustrated the detailed nature of this work, noting that only whole field stones 16 inches or longer were used, and that each stone was carefully cleaned before being hand fitted into the spillway wall.²⁸

CCC Camp Maurek

On May 25th, CCC Company 796, under the command of Army Lieutenant James R. Harlow, left its winter quarters at Haves Center, Nebraska and a few days later reported for duty at the Upper Souris Wildlife Refuge. When the company arrived, work was already in progress on the new headquarters camp, which was located about mile below, or southeast, of Dam 83, and approximately seven miles north-northeast from Foxholm. Although its official designation was BF-1, the camp was informally named "Camp Maurek" in honor of Bernie Maurek, the Regional Director of the Biological Survey.²⁹

Typical of most CCC camps, buildings erected at Camp Maurek were military in their design, were built for temporary use, and were intended to meet the basic needs of the young men which they housed—interpreted by the government to be food, shelter, and hygiene. Like their counterparts in the army, CCC recruits at Camp Maurek slept in large one-room barracks; ate in a common mess hall; and maintained their personal hygiene in a common bath and latrine with laundry facilities. The government provided camp officers and work project foremen with separate quarters and erected an infirmary to house the sick. The CCC also considered structured leisure time and education important aspects of camp life and built two large buildings to house these functions.

Most of the buildings were simple wood-frame structures sitting just a few inches above the ground on concrete foundations, had little or no insulation against North Dakota's bitter winter cold, were heated with simple wood burning stoves, and were classified in CCC records as being "portable." Many were constructed from lumber salvaged from abandoned farm buildings on the refuge.³⁰

Besides facilities for personnel, the government also erected a variety of ancillary structures to service the operation of the camp, including garages, a machine shop, a blacksmith shop, several storage buildings, a gasoline station, an oil house, a generator house, two pump houses, and a water tank and tower. CCC records classified most of these structures as being "rigid" which perhaps suggests that they were more durably constructed than the other camp buildings.³¹

The camp site itself was situated within the river valley, on a level terrace located at the base of upland hills and about 1000 feet northeast of the east river bank. The camp site appears to have been rather barren, landscaped only by a couple rows of trees. Its only other apparent adornment or distinctive feature is located on the hillside overlooking the site from the north and consisting of large field stones placed to spell out "Camp Maurek."

Despite their somewhat bleak living conditions, CCC forces accomplished an incredible amount of work at the Upper Souris refuge and undoubtedly contributed greatly to its overall success. Besides assisting in construction of auxiliary structures between the dams, work projects for the CCC focused on rehabilitating the refuge grounds. CCC forces removed most, if not all, farm buildings and fences, cleared brush and trees from the marsh, pond, and reservoir sites; established a nursery at the refuge headquarters; and conducted a wide variety of habitat improvement projects. By early May 1936, in less than a year's time, several CCC units had built 820 nesting islands for birds as well as 300 shelters and 100 spawning rafts for fish; expended over 2077 hours collecting native grain seeds for future cultivation; planted 100 pounds of wild rice in a temporary marsh; and stocked smartweed and rootstock around nesting islands in the river channel and pond sites.³² Many other development projects were carried by the CCC at the refuge during the following six years. Most notable, perhaps, was the construction of truck trails, extensive landscaping at the Refuge Headquarters, implementation of a predator control program, and bird population studies.

CONSTRUCTION OF THE LOWER SOURIS WILDLIFE REFUGE DAMS AND CCC CAMP

Although there was little or no apparent opposition to the Upper Souris wildlife refuge, the Biological Survey did encounter some local resistance to the Lower Souris project. Objections mostly concerned the "wholesale" loss of the valley's haylands and were voiced primarily by those with a vested interest in irrigation schemes that were also being suggested for the Souris River.³³ While the Biological Survey was attempting to secure the necessary lands and water rights for the Lower Souris refuge, the McHenry County Flood Irrigation Board had submitted requests for Public Works Administration (PWA) funds for two irrigation projects to draw on the Souris River "...for the

purpose of flooding our meadows in the spring and making it possible for us to produce a maximum uniform crop of hay from year to year."³⁴ Known as the Westford and Eaton projects, the two irrigation schemes were proposed for much of the same lands as the refuge and were dependent on the same water rights. In response to protests against the refuge project, the Biological Survey agreed to revise its plans to accommodate the Eaton Project, with some concessions, but insisted that the Westford Project be completely abandoned.³⁵ With these adjustments, the refuge developments along the Souris River were hailed as the first such national undertaking, "in which the correlation of irrigation, flood control and wild fowl marsh problems has been accomplished."³⁶

Dams 320, 326, 332, 341 and 357

As originally conceived, the Lower Souris refuge was to extend along 63 river miles, with its northern boundary lying about 12 miles south of the Canadian line. Within this area would be four major dams, which from south to north were designated as dam nos. 320, 326, 332, and 341. Except for variances in overall length, and height above the river bed, all four structures had a nearly identical design: an earthfill embankment, gated outlet works, and a 700-foot-long stone masonry spillway weir. By late February 1935, the government had acquired enough lands to proceed with the project and called for competitive bids for all necessary dam work such as "spillway riprapping, excavation, and the placing of reinforced steel."³⁷ By the following summer a contract for construction of the dams had been let for \$148,318 to the Megarry Brothers of Bismark. Manager of the firm was James Hill, who had formerly served as an engineer with the North Dakota State Highway Department.³⁸ In less than a year, the Megarry Brothers completed all four of the dams and on April 18, 1936 the Biological Survey closed the control gates for Dam 341 and began flooding the Lower Souris marshes.³⁹

Meanwhile, the government decided to extend the boundary of the Lower Souris refuge north to the Canada-United States line and within this area erect an additional dam. Plans for this structure, Dam 357, were completed in June 1936, and were essentially the same as the other refuge dams.⁴⁰ Labor for its construction was drawn from the CCC Company 766, which had reported for work in July 1935, and since January of 1936 had been building two stone masonry "plugs" or embankments at the south end of the refuge. CCC crews working in three shifts started construction of Dam 357 in August 1936 with hopes that the project would be finished before the onset of winter. Hampered by land acquisition difficulties and nearly 80 round-trip-miles of travel between the CCC camp and the dam site, completion of the dam, however, was delayed until the following fall.⁴¹

CCC Camp Ding

Camp facilities for the CCC forces assigned to the Lower Souris refuge were established adjacent to the east end of Dam 332 and were nicknamed Camp Ding in honor of Jay "Ding" Darling. On May 22, 1935, Bernie Maurek of the Biological Survey staked out the camp site and, as mentioned above, less than two months later, in July, Camp Ding became home to CCC Company 766.⁴²

Similar to Camp Maurek, buildings and structures erected at CCC Camp Ding reflected a military character and were intended for temporary use. Facilities included the camp headquarter offices, several barracks, a bath and latrine, a kitchen and mess hall, an infirmary, an education building, and a recreation hall. Many ancillary structures served the operation of the camp such as garages, machine and repair shops, pump houses, several storage buildings, and a granary.⁴³ Apparently unique to the camp was a large circular fountain, perhaps used for storage of fresh water.

CCC work projects at the Lower Souris were varied and numerous. Besides dam construction activities, between July 1935 and March 1937 the young men built a dwelling, a lookout tower, and four other buildings at the refuge headquarters; laid 6,286 rods of fence and four miles of telephone line; marked 165 miles of boundary; and "moved and planted 75,074 trees and shrubs, collected 28,000 lbs. of flower, grass, shrub and tree seeds, planted 589 acres of food and cover for wildlife, devoted 4,584 man days to lake and pond development, 2,079 man days to nurseries, [and] 2,800 man days to other wildlife activities."⁴⁴ Also during this time, some CCC members volunteered to help re-establish the Canadian goose as a summer resident at the refuge by creating a 15-acre "goose pasture," which was stocked with captive geese to attract wild birds during the nesting season.⁴⁵ C.J. Henry, one of the first managers at the refuge, in periodic progress reports to his superiors often praised the accomplishments of the CCC and at one time noted, "I can readily believe the statement of one biological survey employee who stated that this [CCC] camp works harder than any he has ever seen."⁴⁶

In the early 1940s, both the Upper Souris and Lower Souris refuge projects received a serious blow that, for a time, greatly slowed their further development. With world war on the horizon, and improved economic conditions, CCC applicants began to decline dramatically. In July 1941, the manager for the Upper Souris refuge complained that he had been, "...greatly handicapped in work due to the lack of men in the CCC."⁴⁷ The following October, Camp Maurek was abandoned and the refuge manager sadly reported that "consequently all development work has also discontinued."⁴⁸ Early in the summer of 1942, Camp Ding ceased all operations as well.⁴⁹

CONCLUSIONS

From the inception of the national wildlife refuge system, the Souris River marshes were recognized as a key component in the system for the preservation, propagation and protection of waterfowl. Restoration of wetlands conditions at the two Souris River refuges had an almost immediate and dramatic effect on waterfowl populations. Between 1937 and 1939, the number of ducks frequenting the Upper Souris refuge alone reportedly increased over 150 percent.⁵⁰ By 1957, over 250 different bird species had been recorded on or near the refuges, including 25 species considered rare.⁵¹ Today, the two refuges provide protection to well over 100,000 birds during their spring and fall migrations.⁵²

ENDNOTES

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16. Stan Cohen, The Tree Army: A Pictorial History of the Civilian Conservation Corps, 1933-1942 (Missoula, MT: Pictorial Histories Publishing Company, 1980), pp. 6-7; for a detailed history and analysis of the CCC, refer to: John Salmond, The Civilian Conservation Corps, 1933-1942: A New Deal Case Study (Durham, NC: Duke University Press, 1967).
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18. Mouse River Farmers Press, 7 March 1935, p. 1; Ward County Independent, 7 March 1935, p. 1; Minot Daily News, 1 April 1935, p. 1.
19. Minot Daily News, 21 Sept. 1935, p. 1; 26 Sept. 1935, p. 1; and 27 Sept. 1935, p. 1.
20. Irv Rostad, life time resident in the vicinity, claims that all three dams at the Upper Souris refuge were built by private contractors. Rostad himself was hired by the Hallet Company as a laborer for Dam 83, however, he doesn't recall if the Hallet Company also had the contract for Dams 87 and 96, or if they were built by some other firm, or firms; Irv Rostad, personal interview with Mary E. McCormick, Headquarter Offices of the Upper Souris National Wildlife Refuge, North Dakota, 17 April 1989.
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PROPERTY TYPES

EARTHFILL DAMS

Name of Property Type: Earthfill dams built at wildlife refuges in North Dakota during the New Deal Era

Description

There are three basic components to a typical earthfill dam: the earth embankment, a spillway, and outlet works. Important features of the earth embankment are the foundation, cutoffs, the core, upstream and downstream shells, and facing materials. Homogeneous embankments consist entirely of impervious core materials, without shells. Zoned embankments have an impervious core adjoined by one or more shells. Because the upstream shell of an earthen dam becomes saturated when the reservoir is full, it should be comprised of material which drains freely when the reservoir is drawn down and of a coarse grain to avoid liquefaction during an earthquake. Because the downstream shell should never be saturated, most any material may be used which can withstand normal erosion due to weather. In most circumstances, it is not essential that the core or shells of an earthfill dam rest on impervious foundation materials, so only topsoil and other unsuitable materials are stripped prior to placement of the embankment. Where excavation of the overburden is impractical, interlocking steel sheet piling may be used for cutoff walls.

Whether homogeneous or zoned, earthen embankments usually have both upstream and downstream facings to protect the earthfill from erosion caused by weather and the reservoir. The upstream face of an earthfill dam must be able to resist the wave action of the reservoir. Usually, rockfill is used for the upstream face; concrete or asphalt has been successfully used in cases where rock is not readily available but can be prone to the same problem of cracking due to differential settlement of the embankment. The downstream face may be any material which is sufficient to resist erosion of the weather, such as rock fill, or topsoil and grass.

A spillway is essential for an earthfill dam to prevent overtopping and erosion of the earth embankment, which could cause failure of the dam. A spillway must be designed to carry a maximum flood safely. A spillway is generally one of three types: 1) a chute in a channel cut through the abutment or set in a saddle elsewhere along the rim of the reservoir; 2) a concrete gravity dam set at some point along the length of the earth embankment; 3) or a tunnel or conduit. At its head, a spillway also has a control structure consisting of a weir, an ogee overflow (meaning that in section it has an S-shape), a side-channel structure, or an operable gate.

The outlet works of a earthen dam allow operators to control the volume of water discharged into the river channel below the dam for use downstream. The outlet works generally consist of an intake structure equipped with screens to

keep large objects from passing through the outlet; a conduit which carries the water around, beneath, or through the dam; and gates or valves used for controlling the volume of discharge. Most spillways and outlet works also require a stilling basin designed to dissipate the energy embodied in the discharge without allowing damaging erosion to the stream channel below the dam.

Significance

Earthen dams for wildlife habitat restoration at New Deal era refuges in North Dakota may be eligible for the National Register of Historic Places under Criteria A, B, or C. They may be eligible under Criterion A for their associations with important stages in the development of the nation's wildlife refuge system during the New Deal era or the role they played in development of a particular wildlife refuge during the New Deal era. Wildlife refuge dams may be eligible under Criterion B for their associations with individuals who played important roles in the development of the nation's wildlife refuge system during the New Deal era or who played important roles in the development of a particular wildlife refuge project during the New Deal era. Such dams may be eligible under Criterion C if they represent an important engineering development in the design or construction of dams in general, or if they have important features associated with wildlife refuge dams in particular, or if they have an important association with a significant engineer or builder.

Registration Requirements

For a wildlife refuge dam to be eligible under Criterion A, it must have a clear and strong association with an important aspect of the development of the nation's wildlife refuge system during the New Deal era or it must have played an important role in the development of a particular wildlife refuge during the New Deal era. For a wildlife refuge dam to be eligible under Criterion B, it must have an important association with a significant individual, other than an engineer or builder. For a wildlife refuge dam to be eligible under Criterion C, it must represent an important engineering development in the design or construction of dams, or it must be a good representative of the work of an important dam engineer or builder, or it must display visual design characteristics which strongly link it to the period of its construction. For a wildlife refuge dam to be eligible for the National Register of Historic Places under Criterion C, and to lesser extent under Criteria A and B, it must retain integrity of setting, location, design, materials, workmanship, feeling, and association as defined by National Register guidelines.

CCC CAMPS

Name of Property Type: CCC Camps at wildlife refuges in North Dakota

Description

Buildings and structures at CCC camps at wildlife refuges in North Dakota comprise this property type. Typical of most CCC camps, buildings and structures erected at CCC camps at wildlife refuges in North Dakota were military in their design, were built for temporary use, and were intended to meet the basic needs of the young men which they housed—interpreted by the government to be food, shelter, and hygiene. Like their counterparts in the Army, CCC recruits at wildlife refuge camps slept in large one-room barracks, ate in a common mess hall, and maintained their personal hygiene in a common latrine and bath house with laundry facilities. Camp officers and work project foremen had separate quarters. A camp often had an infirmary erected to house the sick. The CCC considered structured leisure time and education important aspects of camp life and established large buildings to house these functions. Most camp buildings were simple wood frame structures that sat just a few inches above the ground on concrete foundations, had little or no insulation against the cold, were heated with simple wood burning stoves, and were classified in CCC records as being "portable." Many were constructed from lumber salvaged from abandoned farm buildings on the refuge.

Besides facilities for personnel, CCC camps at wildlife refuges in North Dakota contained a variety of ancillary structures which were also erected to service the operation of the camp and typically included garages, machine shops, blacksmith shops, and storage buildings. CCC records classified most of these structures as being "rigid" which suggests that they were of more durable construction than the other camp buildings. Landscaping varied from camp to camp and may have included such features as ball fields, fountains, outdoor grills or ovens, fruit and vegetable gardens, and hedges and trees.

Significance

Buildings and structures at CCC camps at wildlife refuges in North Dakota may be eligible for the National Register of Historic Places under Criteria A, B, or C. They may be eligible under Criterion A for their associations with important stages in the development of the nation's wildlife refuge system during the New Deal era or the role they played in development of a particular wildlife refuge during the New Deal era. They may also meet Criteria A for their association with important stages in development of the CCC program. CCC camps at wildlife refuges in North Dakota may be eligible under Criterion B for their associations with individuals who played important roles in the development of the nation's wildlife refuge system during the New Deal era or who played important roles in the development of a particular wildlife refuge during the New Deal era. They may also be eligible under Criterion B for their associations with individuals who played important roles in the development and operation of the CCC program. For a building or structure at a wildlife

refuge CCC camp to be eligible under Criterion C, it must represent an important architectural characteristic or development in building design in general, or have an important association with a significant architect.

CCC camps sites do not meet eligibility requirements for National Register listing under Criterion D because they are not likely to yield additional important information. Information about CCC camps sites is already very well documented in the written record. In particular, CCC records at the National Archives are extensive and provide detailed information on nearly every aspect of the operation and maintenance of the CCC camps, such as dates of construction, operation, and abandonment; the number, type, and functions of buildings and structures erected and buildings materials used; work projects completed; and information on the quality of life in the camps.

Registration Requirements

For a CCC camp at a wildlife refuge in North Dakota to be eligible for the National Register of Historic Places under Criterion A, it must have a clear and strong association with an important aspect of the development of the nation's wildlife refuge system during the New Deal era or it must have played an important role in the development of a particular wildlife refuge during the New Deal era. For a CCC camp at a wildlife refuge to be eligible under Criterion B, it must have an important association with a significant individual, other than an engineer or builder. For a wildlife refuge camp to be eligible under Criterion C, it must represent an important architectural characteristic in building design, or it must be a good representative of the work of an important architect, or it must display visual design characteristics that strongly link it to the period of its construction. Additionally, for a CCC camp at a wildlife refuge to be eligible under Criteria A, B, or C it must retain integrity of setting, location, design, materials, workmanship, feeling, and association as defined by National Register guidelines.

PHYSICAL DESCRIPTION

UPPER SOURIS NATIONAL WILDLIFE REFUGE DAMS AND CCC CAMP MAUREK

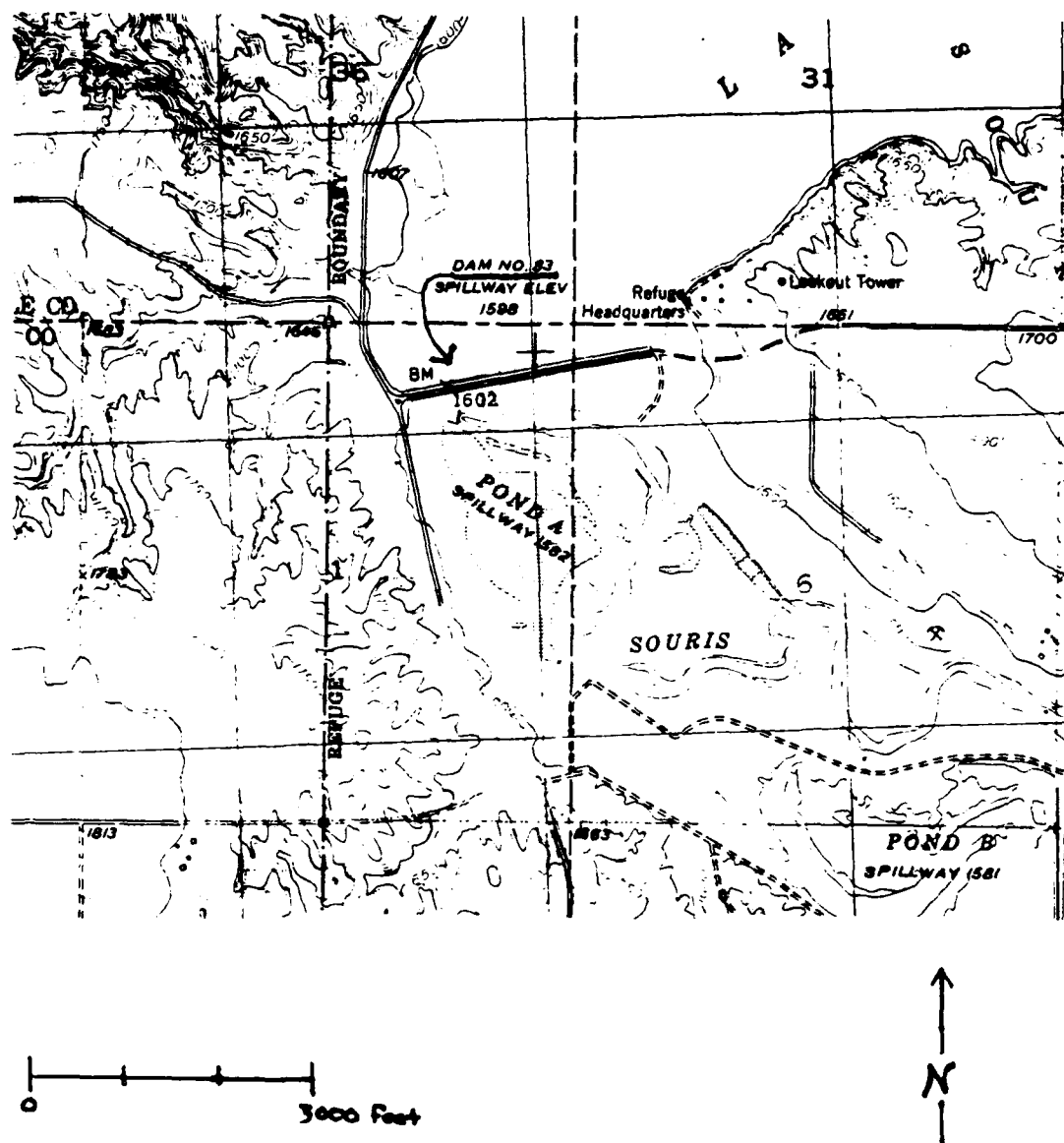
The Upper Souris National Wildlife Refuge is located in Renville and Ward counties in north-central North Dakota along a narrow 30-mile stretch of the Souris River Valley. About 25 miles downstream from the south end of the refuge lies the City of Minot. The surrounding short grass prairie is characterized by gently rolling hills that accommodate thousands of small "pot hole" lakes and ponds. Within its boundaries, the refuge includes about 32,000 acres. Most of the northern two-thirds of the refuge is occupied by Lake Darling, a 10,000-acre storage reservoir. Downstream, or southeast of Lake Darling, the refuge contains thousands of acres of restored waterfowl habitat, which includes several small bodies of open water, marshes, and wet meadow lands. These water developments are created and maintained by a network of three dams as well as other diversion structures including spillways, control works, dikes, levees, and channels. The headquarters for the refuge are situated at the southeast end of Lake Darling, about six miles north of the town of Foxholm and about eight miles east of the town of Carpio. Access to the refuge headquarter from Foxholm is provided by a county highway.

Dam 83

Dam 83, or Lake Darling Dam, is the farthest upstream of the dams at the Upper Souris refuge and situated at the north end of Ward County (NW 1/4 Sec. 6, T157N, R84W and NE1/4 Sec. 1, T157N, R85W; Figure 3). The dam impounds the Souris River to form Lake Darling Reservoir, which primarily serves to maintain water for distribution to restored wildlife habitat situated immediately downstream within the Upper Souris refuge as well as at the J. Clark Salyer Refuge, located about 110 miles (240 river miles) downstream.

Dam 83, is a zoned earthfill embankment with a service spillway, an emergency spillway, and outlet works. The dam lies along an east/west axis, is 39 feet high and about 3,300 feet long. The crest of the dam is 39 feet wide and carries a paved county highway its entire length (Figures 4 and 5). Construction of the dam began in 1935 with removal of the top 18" of soil from an area covering the length of the dam site and averaging about 225 feet in width. Then a cutoff trench was excavated under and along the length of the upstream zone of the embankment. The trench had a standard bottom width of 6 feet but its depth varied from about 5 to 10 feet. Installed in the trench was Wakefield sheet piling, which consists of 3-inch by 8-inch, tongue-and-grove timbers.¹ Clay puddling around the sheet piling was completed providing the dam with an impervious core.²

The earthfill embankment is comprised of two zones of material with each zone being about equal in volume. The upstream zone is impervious and consists of an earth, sand, and gravel mixture laid in 6-inch layers that were each sprinkled with water and then compacted by rollers. The downstream zone is semi-impervious and consists of 1-foot layers of "bank run" rock, gravel, and sand that were also each sprinkled with water and compacted by a roller.³



USGS 7.5"
Carpio NE (1979)

Figure 3 Map showing the location of Dam 83.



Figure 4. View of Dam 83 embankment showing the crest and the upstream face, looking east.



Figure 5. View of Dam 83 embankment showing the crest and downstream face, looking east



Figure 6. View of Dam 83 spillway showing the concrete weir, looking east.



Figure 7. View of Dam 83 spillway showing concrete apron (background), stone paving, and stone masonry wing walls, looking northwest.

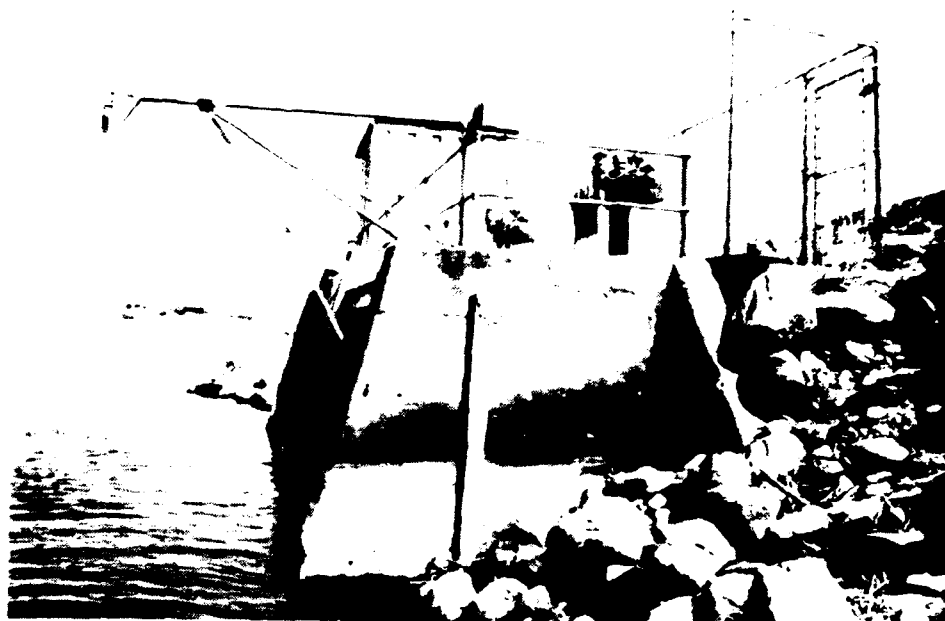


Figure 8. View of Dam 83 outlet works showing modern gate structure, looking east.



Figure 9. View of Dam 83 stilling basin, looking north.



Figure 10. View of Dam 83 stilling basin showing baffle wall (left), and stop log outlet to the Souris River channel, looking east.

The upstream face of the embankment has a 3:1 slope. A layer of whole field stones originally covered this surface above elevation 1585 feet. In April 1976, the upstream face was resurfaced with fractured-rock riprap.⁴ The slope of the downstream face of the embankment varies from 3:1 near the base to 2:1 near the crest; the segment above water is covered by sod. The crest of the embankment is at an elevation of 1606 feet.

The service spillway is an uncontrolled structure located along the east end of the embankment (Figures 6 and 7). At the upstream end of the spillway there is a 320-foot long concrete cutoff wall, or weir, which is 15 inches thick and has a crest elevation of 1598 feet. The cutoff wall originally held collapsible flashboards but these have long since been removed. Along the downstream edge of the cutoff wall, the spillway has an apron consisting of a 115-foot long slab of reinforced concrete that also serves as a segment of the county highway. When originally built, the apron was just 9 inches thick, but in 1970 it was entirely resurfaced with a 6-inch concrete slab affixed to the original with dowels. The downstream end of the apron feeds into an earthen discharge channel which consists of two segments. The upstream channel section is about 300 feet long and is lined with stone masonry. The downstream section is 346 feet long and lined with rock riprap. The discharge channel is flanked on either side by low, stone-masonry walls.⁵

The emergency spillway is an uncontrolled channel located at the right abutment. This unlined earthen structure has a crest width of 250 feet and a crest elevation of 1602 feet. Near its downstream end is an unlined discharge channel.

The outlet works extend through the earthfill embankment about 60 feet east of the right abutment (Figure 8). Components of the outlet works include a reinforced concrete intake structure with trashracks, roller-bearing gates, two outlet tunnels, and a stilling basin. The intake structure is situated on the upstream side of the embankment and consists of two identical chambers. The chambers each measure 25 feet high by 12 feet wide and are separated by a 2-foot thick concrete wall. Extending upstream from the intake chambers is a reinforced concrete apron with flared wing walls, 12 inches wide each. Laid across the top of each of the intake structures are five steel I-beams, 4 feet on center, from which the trashracks are suspended. The trashracks are each about 12 feet wide by 16 feet high and are composed of vertical, 1-inch square bars, 11-1/2 inches on center, affixed to horizontal, 3/4-inch by 7-1/2-inch steel plates, 6 inches on center. A crane mounted on a pivot structure atop the intake is used for lifting and cleaning the trashracks. The existing trashracks and supporting I-beams were installed in 1976 after the original trashracks were damaged by ice carried in flood waters.⁶

On the downstream side of the intake structure are two parallel 10-foot by 12-foot roller gates, each having a structural steel frame with a sheet metal skin on the upstream face. These gates were installed in 1981 and replaced the two original manually-controlled gates, which were each 12-foot by 10-foot, breast-wall, bronze-bushed, roller-bearing gates manufactured by the Hardesty Company.⁷ The present gates have slide gate operators on stands located on the deck of the intake structure. The operators for the gates are driven by electric motors and can be controlled manually on-site, or remotely from the maintenance shop near the east abutment.

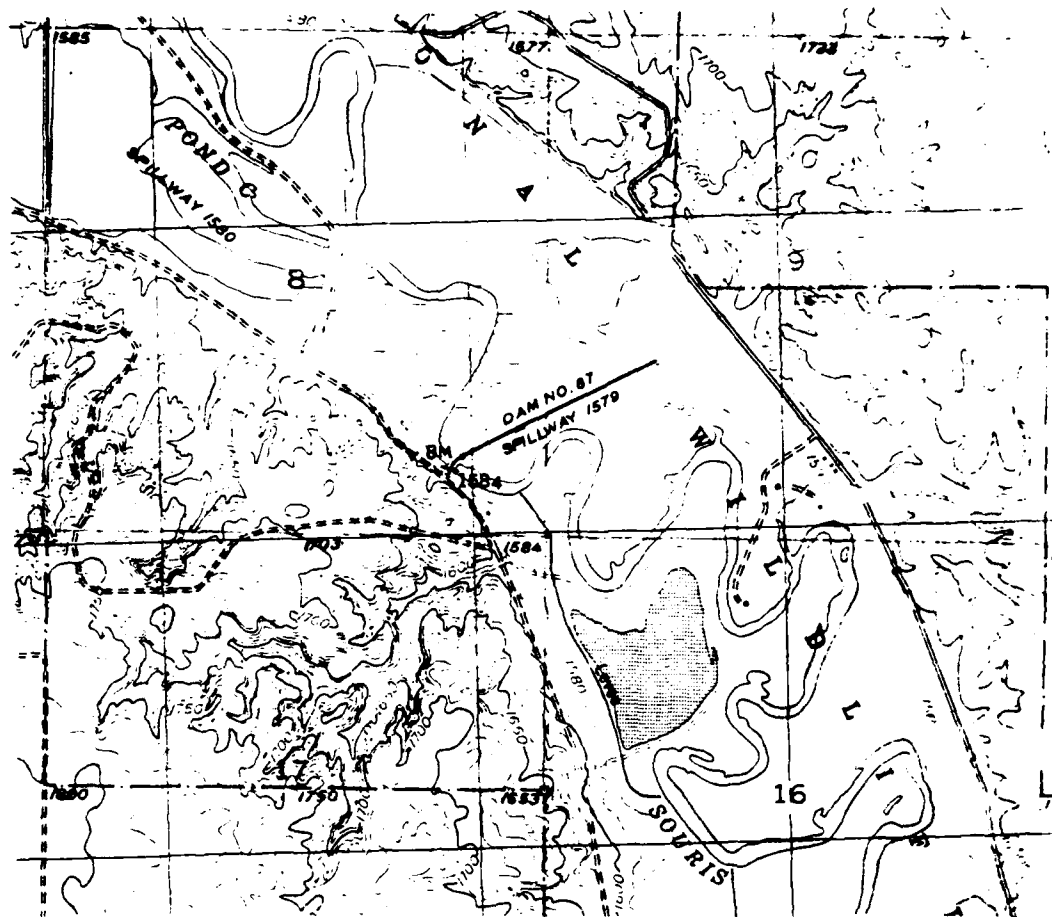
The two outlet tunnels extend through the dam about 90 feet from the roller gates to the dam's downstream side. Both of the tunnels are rectangular structures (10 feet by 14 feet) and each is constructed of reinforced concrete, 18 inches thick. The outlet tunnels empty into the stilling basin, which now is a concrete-lined structure extending 300 feet downstream from the outlet (Figures 9 and 10). When it was originally constructed, the stilling basin was lined with concrete for a length of only 40 feet, with the remaining downstream section lined by stone masonry and riprap. In April 1943, the still basin experienced considerable erosion from large discharges of water from the reservoir. Later that year, a cutoff wall of Wakefield sheet piling was installed along the downstream edge of the basin's original concrete lining and the entire basin was relined with concrete for a total length of about 275 feet. Between 1944 and 1948, further erosion occurred downstream from the stilling basin and as a result, in 1949, the concrete lining was extended an additional 26 feet downstream and Wakefield sheet piling was installed along the new downstream edge of the basin floor. Also at this time, two low concrete "baffle" walls were built across the width of the stilling basin floor. These walls, which are spaced about 60 feet apart, act to dissipate the energy of the water as it is released from the outlet tunnels.⁸

The downstream end of the stilling basin discharges into one of the ponds (Pond A) developed at the refuge for waterfowl habitat. Water is further channeled from Pond A to Ponds B and C. All three of the ponds lie several feet about the river channel and their level may be altered by a series of dikes, control works, and channels that were constructed by Civilian Conservation Corps (CCC) forces in the mid-1930s at the same time the dams were built. The control structures associated with Ponds A, B, and C are not evaluated in this report. Along the east side of the stilling basin, and about 240 feet downstream from the outlet tunnel portals, there is a stop-log structure that allows discharged water from the dam to be diverted out of the stilling basin and into the main river channel.

Since its original construction, Dam 83 has sustained alterations to all of its major components. Modification to the embankment and service spillway, however, are minor and have had an insignificant effect on their overall appearance or function. The outlet works have been more seriously altered by replacement of the original trash gates, and roller gates, as well as reconstruction of the stilling basin. Nevertheless, the outlet works still retain many aspects of their original form and design, as well as their basic function within the operation of the dam. The overall integrity of the dam remains good.

Dam 87

Dam 87 is located in Ward County (SE 1/4 Sec. 8 and SW 1/4 Sec. 9, T157N, R84W) about 2-1/2 miles southeast, or downstream, from the refuge headquarters near Dam 83 at Lake Darling (Figure 11). Dam 87 impounds water from the Souris River into small ponds and other wetlands suitable for waterfowl habitat such as marshes and meadows.



USGS 7.5"
Carpio NE (1979)

Figure 11. Map showing the location of Dam 87.



Figure 12. View of Dam 87 embankment, looking northeast.

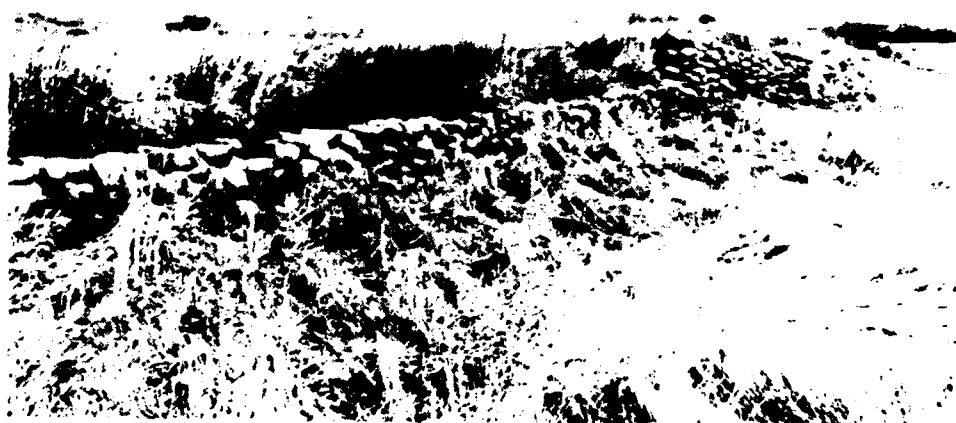


Figure 13. View of Dam 87 spillway showing stone masonry weir wall and east wing wall, looking north.



Figure 14. Upstream view of Dam 87 control structure, looking northwest.



Figure 15. Downstream view of Dam 87 control structure, looking east.

Dam 87 is an homogeneous earthfill embankment with an emergency spillway, a service spillway, and outlet works. The dam lies along a southwest/northeast axis and is 20 feet high. The crest of the earthfill embankment is flat and about 8 feet wide, 1800 feet long, and at an elevation of 1583.5 feet (Figure 12). The upstream side of the embankment has a slope of 5:1 while the slope of the downstream side is 3:1. The crest and slopes of the embankment are vegetated by grass and low brush.

The emergency spillway is an uncontrolled weir located along the crest of the embankment, near the east abutment of the dam (Figure 13). The weir is of stone masonry construction and consists of a 700-foot-long wall with flared wing walls and a stone masonry apron below its downstream side. At the west end of the weir wall is a concrete slot for a stop log structure, but this slot has been in-filled with dirt and the stop log structure is inoperable. The crest elevation of the weir is 1579.1 feet.

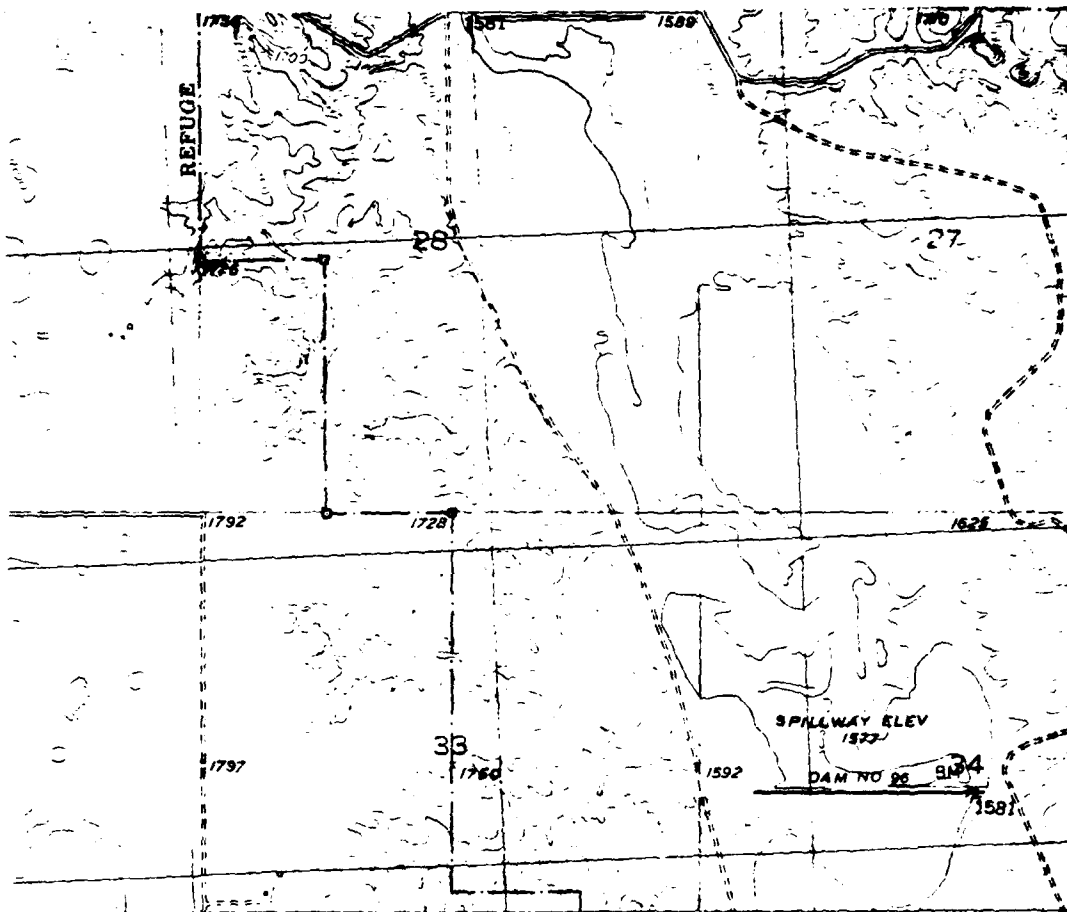
The service spillway and outlet works for the dam are located at the southwest abutment and are incorporated into a reinforced concrete structure which spans the main river channel (Figures 14 and 15). Concrete piers divide the structure into six bays and also support an overhead walkway consisting of a concrete deck with gas pipe railing. The walkway provides access to the controls of the outlet works as well as to the rest of the dam. The two outer bays at each end of the structure contain concrete weir walls, which comprise the service spillway. Each of the four weir walls, however, have been modified by the installation across their crest of a 3-inch by 12-inch plank which has raised the top elevation of the spillway to 1578.2 feet. The planks are bolted at either end to wooden posts that are secured to the walkway above with steel channel section hangers.

The outlet works, located in a single bay near the middle of the concrete structure, consist of a radial gate measuring 16 feet by 8 feet with a top elevation of 1578.4 feet. The radial gate is located at the upstream side of the concrete structure. Just east of the radial gate is a 4-foot by 4-foot sluice gate. Both the radial gate and sluice gate are operated by manual hoists and the controls for the hoists are mounted on the walkway. The cast base for hoist controls reads, "Western Foundry Co., Portland, OR" and the wheel handle for the radial gate is embossed with the letters, "U.S.R.S.," which stand for United States Reclamation Service, the predecessor agency to the Bureau of Reclamation. Immediately downstream from the gates is a stilling basin which consists of a concrete apron and plunge pool.

This dam appears to retain excellent integrity in all aspects.

Dam 96

Dam 96 is located in Ward County (S 1/2 Sec. 34, T157N, R84W) about five miles southeast, or downstream, of the refuge headquarters near Dam 83 at Lake Darling (Figure 16). Dam 96 impounds water from the Souris River into several small open bodies of water, as well as other wetlands suitable for waterfowl habitat such as marshes and meadows.



0 3000 feet



USGS 7.5"
Carpion NE (1979)

Figure 16. Map showing the loction of Dam 96.



Figure 17. View of Dam 96 embankment, looking west.



Figure 18. View of Dam 96 spillway showing stone masonry weir wall and east wing wall, looking northeast.



Figure 19. View of Dam 96 spillway showing stone masonry weir wall with concrete infill wall, looking northwest.



Figure 20. Historical view of Dam 96 showing lowering of the outlet works gate on May 26, 1936.



Figure 21. Downstream view of Dam 96 control structure, looking northwest.



Figure 22. Downstream view of Dam 96 control structure showing detail of the radial gate at center, looking northeast.

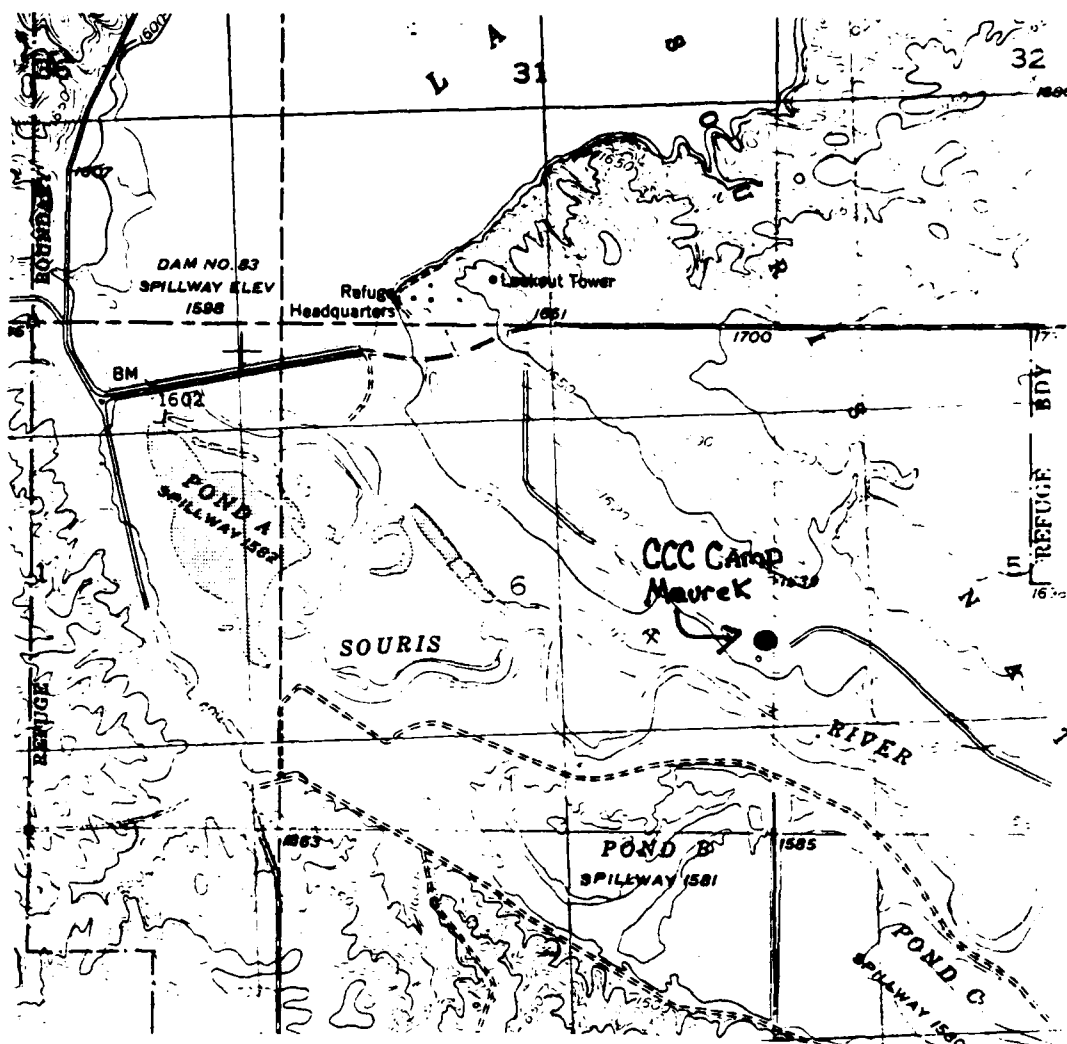
Dam 96 consists of a homogeneous earthfill embankment, an emergency spillway, a service spillway, and outlet works. The dam is oriented along an east/west axis and has a total length of about 3000 feet. The earthfill embankment of the dam has a structural height of 18.1 feet, an hydraulic height of 15.4 feet, a crest elevation of 1579.6 feet, and a crest width that varies between 8 and 14 feet (Figure 17). The upstream side of the embankment has a slope of 7:1 while the slope of the downstream side is 4:1. The crest and slopes of the embankment are vegetated by grass and low brush.

The emergency spillway is an uncontrolled structure located near the center of the earthfill embankment (Figure 18 and 19). It consists of a 700-foot long weir wall with a crest elevation at 1577.2 feet. Under the crest of the entire spillway is a 6-foot deep, timber cutoff wall. Most of the weir wall is the original 4-foot-high stone masonry wall with stone masonry wing walls, and a 4-foot-long stone masonry apron downstream. In 1951, however, a section about 75 feet long at the west end of the weir, including the apron, was removed and replaced with a reinforced concrete wall supported on its downstream side by concrete buttresses, spaced 12 feet on center. At the same time, the west wing wall was also reinforced by construction of a concrete wall along its inside face.⁹ The conveyance structure for the emergency spillway is a 15- to 20-foot wide ditch which connects the downstream side of the spillway to the main river channel. The ditch runs parallel to -- and approximately 20 feet downstream from -- the toe of dam.

The service spillway and outlet works for the dam are located at the east abutment and are incorporated into a single reinforced concrete structure which spans the main river channel (Figures 20 and 21). All four corners of the structure are buttressed by stone masonry wing walls. Concrete piers divide the structure into six bays and also support a concrete walkway with gas pipe railing. The walkway provides access to the controls of the outlet works as well as the rest of the dam. The two outer bays at each end of the structure are each 13 feet wide and contain concrete weir walls which comprise the service spillway. The weir walls have a crest elevation of 1576.9 feet.

The outlet works, located in a single bay at the middle of the concrete structure, consist of a radial gate measuring 16 feet by 8 feet with a top elevation of 1577 feet (Figure 22). The radial gate is located along the upstream side of the concrete structure. In the small bay just east of the radial gate is a 4-foot by 4-foot, sluice gate with a flow line elevation of 1562 feet. Both the radial gate and sluice gate are operated by manual hoists wheels which are mounted on the walkway. Immediately downstream from the outlet is a stilling basin with the first 4 feet being stone masonry and the remainder being a concrete apron.

The overall integrity of the dam remains good. Although the spillway has been altered, its basic form is intact and its function within the operation of the dam is unchanged. Both the dam embankment and outlet works retain excellent integrity in all aspects.



0 3000 feet



USGS 7.5"
Carpio NE (1979)

Figure 23. Map showing the location of CCC Camp Maurek.

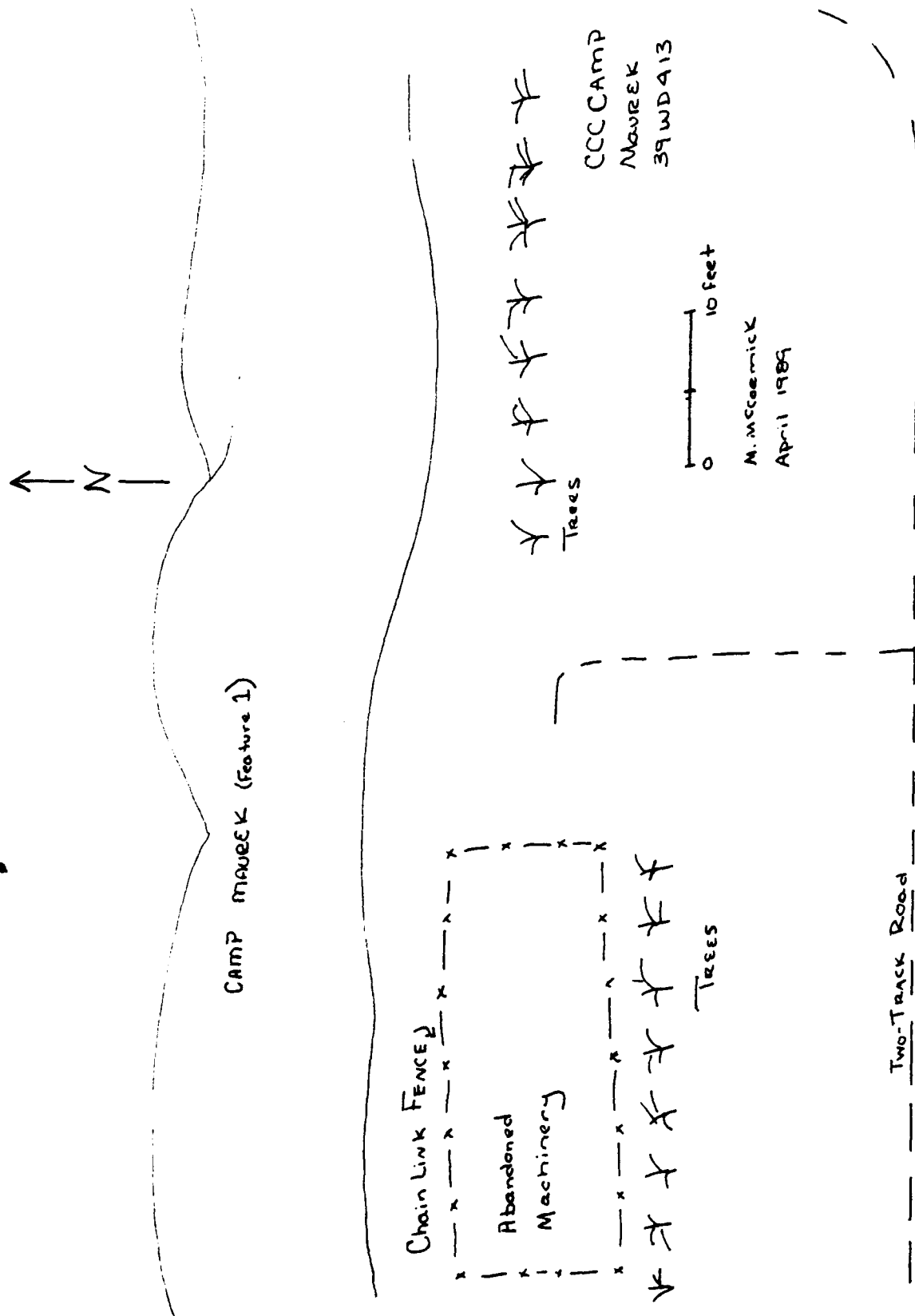


Figure 24. Sketch map of the site of CCC Camp Maurek (39WD413).



Figure 25. General overview of the site of CCC Camp Maurek showing tree row (center) and rock alignment (Feature 1) which reads "Camp Maurek" (right background), looking northwest.



Figure 26. Detail of "Camp Maurek" rock alignment (Feature 1), looking north.

CCC Camp Maurek

The site of CCC Camp Maurek is located in Ward County (SE 1/4 Sec. 6, T157N, R84W), about a mile south of Dam 83 and the refuge headquarters, and six miles north-northeast of Foxholm. The site is situated about 1000 feet northeast of the east river bank and occupies a level terrace situated at the base of upland hills (Figure 23). The general site area is vegetated by short prairie grasses.

During its period of occupation, 1935-1941, Camp Maurek contained over 30 buildings including domestic structures for camp personnel and auxiliary facilities such as work shops, garages, and storage buildings. Most, if not all, of these buildings were wooden structures on concrete foundations.¹⁰ Soon after the camp was abandoned by the CCC, almost all of its buildings in the fall of 1942 were dismantled. Their lumber was transferred to the War Department for use in conjunction with construction of the Alaskan Highway. Only four buildings at Camp Maurek were left standing: a machine shop, oil house, storage shed, and a barracks. Subsequently, the buildings were extensively altered by the Fish and Wildlife Service and used as maintenance facilities for the refuge until the early 1980s when all four were demolished.¹¹

The only remnant from Camp Maurek presently at the site is located on the hillside overlooking the north end of the site area. It is an arrangement of stones (Feature 1) that reads, "Camp Maurek" (Figures 24, 25 and 26). A few small fragments of glass and metal are scattered on the site surface. According to Irv Rostad, retired Fish and Wildlife Service employee, all foundation remains at the camp were broken up and buried in a common pit along with other debris.¹² The site area is currently landscaped by two rows of trees which may have been planted by the CCC. Also at the site there is a modern chain link fence enclosure used by the Fish and Wildlife Service to store abandoned machinery.

Camp Maurek has lost all integrity of design, materials, workmanship, feeling, and association. The site no longer retains the ability to evoke its historic identity as a CCC Camp.

J. CLARK SALYER NATIONAL WILDLIFE REFUGE DAMS AND CCC CAMP DING (Lower Souris National Wildlife Refuge)

The J. Clark Salyer National Wildlife Refuge is located along a winding 75-mile stretch of the Souris River in Bottineau and McHenry counties in north-central North Dakota. Originally established in the mid-1930s as the Lower Souris National Wildlife Refuge, this refuge was renamed in 1967 in honor of J. Clark Salyer, II, the chief of the national wildlife refuge program from 1934-1961. The 58,700-acre refuge is largely comprised of native prairie lands, with some wooded bottom lands and aspen and brush-covered sandhills, as well as over 21,000 acres of restored river ponds, marshes, and wet meadows. Water developments in the refuge were established, and are maintained, by a network of five major dams and other diversion structures including two small masonry dams, and several dikes, levees and channels. The

five major dams are located so that their reservoirs or backwaters extend nearly the entire length of the refuge from near Upham north to the United States-Canada border. The headquarters for the refuge are situated west of the river, about two miles north-northeast of the town of Upham, and adjacent to one of the southern-most dams, Dam 326. Access to the refuge headquarters from Upham is provided by a county highway.

Dam 320

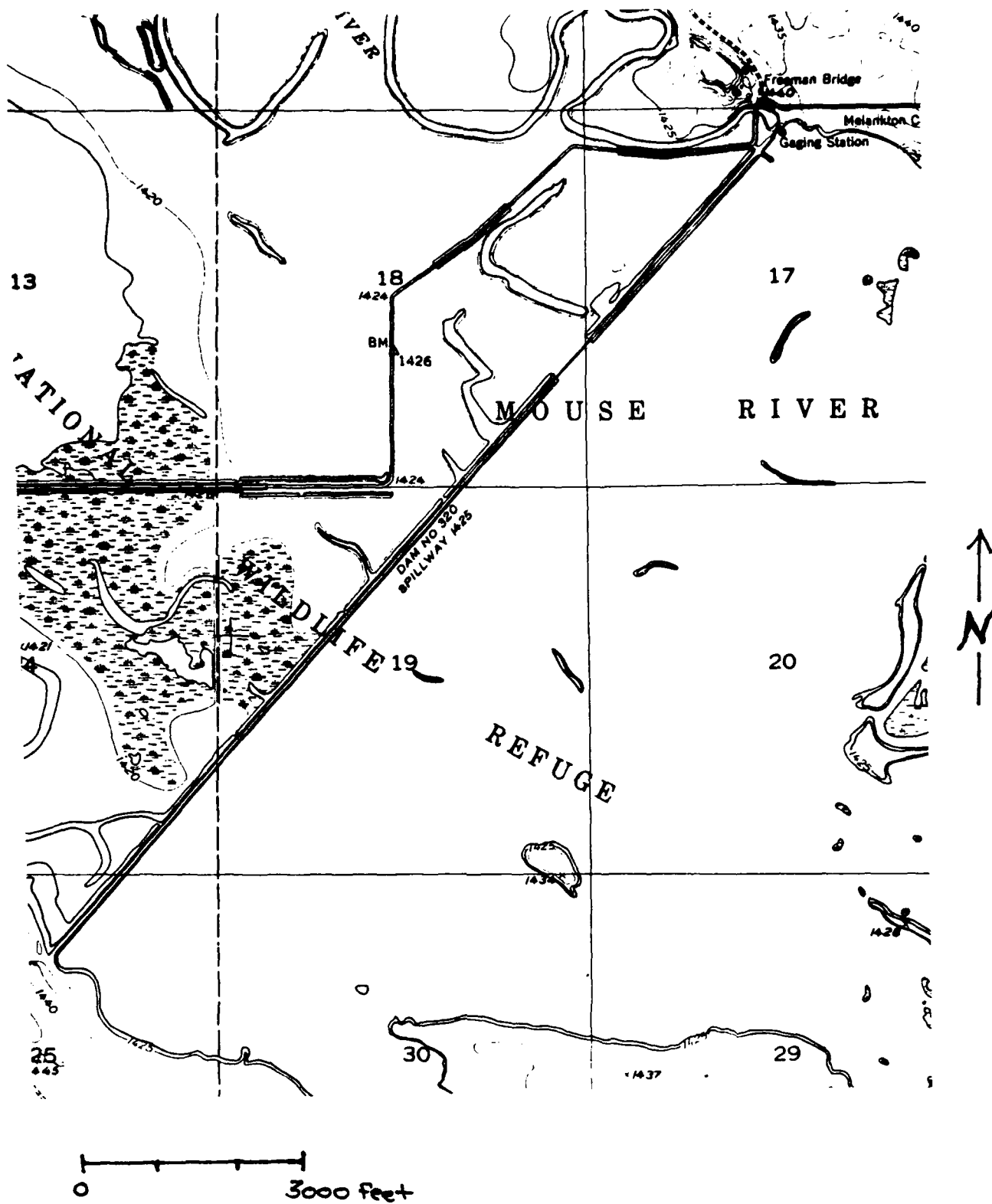
Dam 320 is the southern-most, or farthest upstream, of the five major dams at the J. Clark Salyer Refuge and is located in McHenry County (E 1/2 Sec. 17, SE 1/4 Sec. 18, and N 1/2 and SW 1/4 Sec. 19, T159N, R77W; and SE 1/4 Sec. 24 and NE 1/4 Sec. 25, T159N, R78W). The dam is about 2-1/2 miles southeast, or upstream, from the refuge headquarters (Figure 27).

Dam 320 consists of a homogeneous earthfill embankment, an emergency spillway, and outlet works. The earthfill embankment is oriented along an northeast/southwest axis, and has a height of about 13 feet, a crest width of 16 feet, and a crest elevation of 1428.7 feet (Figure 28). The total length of the embankment, including the spillway, is 15,575 feet. The upstream side of the embankment was constructed with a slope 4:1 along its upper and lower sections; and a slope of 12:1 along its middle section. The downstream side of the embankment has a slope of 4:1. The surface of the embankment is vegetated with grass except for the lower 2/3 of the upstream face which is protected by rock riprap. The original plans for the dam called for the top soil at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.¹³

The emergency spillway is an uncontrolled weir located along the crest of the embankment, about 4200 feet southwest from the right dam abutment (Figures 29, 30, and 31). When it was originally constructed, the spillway consisted of 700-foot-long stone-masonry wall with flared stone-masonry wing walls and a stone-masonry apron below its downstream side. Since then, most likely in the late 1940s, the spillway wall was modified by the addition of new concrete wing walls, a concrete cap, and concrete buttresses which are spaced 12 feet on center along its downstream face.¹⁴ The current crest elevation of the weir is 1425.8 feet.

There are two outlet structures for the dam. The main outlet works is located near the right abutment of the dam and spans the main river channel (Figures 32, 33, and 34). It consists of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four, 17-foot-long by 13-foot-high walls (two end walls and two piers), which serve as supports for the three radial gates. The downstream wing walls for the concrete structure are constructed of interlocking, corrugated sheet piling, and the upstream wing walls are concrete.

The radial gates each consist of a corrugated steel face (16 feet wide by 10 feet high) with channel section supports and angle section radials. The outer face of each gate is set along the upstream side of the concrete



USGS 7.5'
Upham (1950)

Figure 27. Map showing the location of Dam 320.

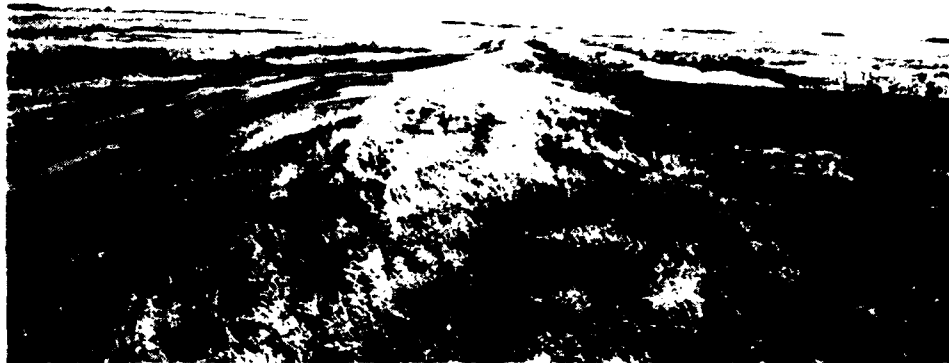


Figure 28. View of Dam 320 embankment as seen from the outlet works, looking southwest.



Figure 29. View of Dam 320 spillway showing concrete buttresses along the stone masonry weir wall, looking east.



Figure 30. View of Dam 320 spillway as seen from the embankment, looking southwest.



Figure 31. View of Dam 320 spillway weir wall showing concrete buttress and the southeast wing wall (concrete), looking south.



Figure 32. View of Dam 320 showing the outlet works (left center) and embankment, looking southwest.



Figure 33. Downstream view of the Dam 320 outlet works (main structure), looking northeast.

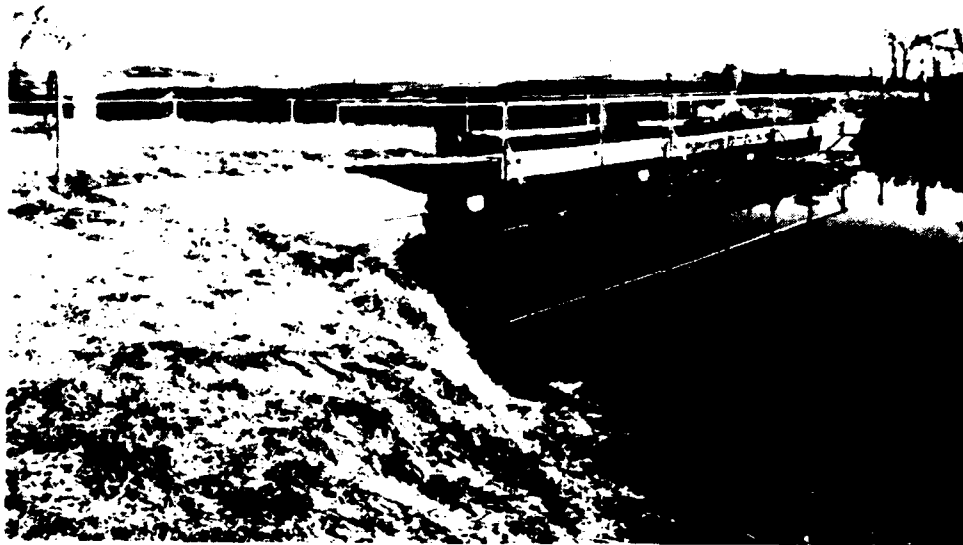


Figure 34. Upstream view of Dam 320 outlet works (main structure), looking north.



Figure 35. View of Dam 320 stop log structure (outlet) showing the concrete bulkhead along upstream face of the dam embankment, looking northeast.

structure. Although there is no intake to the gates, the concrete walls between the gates extend downstream and serve as outlet structures. The outlet discharges into a stilling basin consisting of a concrete apron and plunge pool.

The radial gates are operated by manual hoists and the hoist control for each gate is mounted on top of an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway along the structure's upstream side. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck and an angle section rail. Along its downstream side, the concrete structure also supports a narrow walkway consisting of planks resting on two channel section stringers. This is the only one of the outlet works at the five dams that was not altered during 1949-1951 by raising the concrete walls/piers by 3 feet.

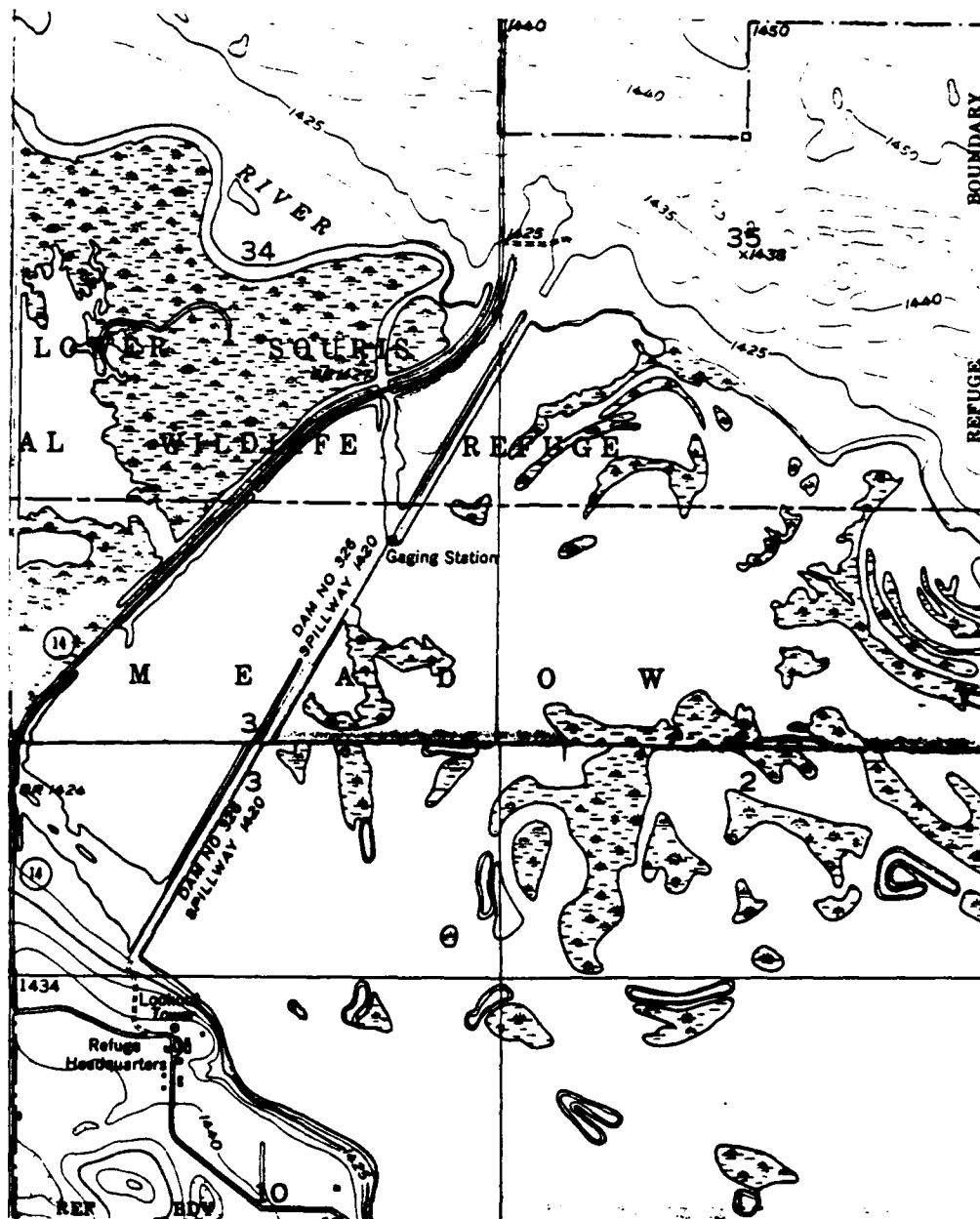
The other outlet works for the dam are located near its southwest abutment and consist of a stop log structure and a conduit. Located on the upstream side of the embankment, the stop log structure has a reinforced concrete bulkhead (Figure 35). Interior walls of the structure hold 5-foot 3-inch long stop logs that can be adjusted manually to control the structure's top elevation. A 48-inch steel pipe extends from the stop log structure about 30 feet under the dam to the downstream side of the embankment where it empties into a low marshy area.

Overall, this dam retains very good integrity. Although the spillway has been altered, its basic form is still evident and its function within the operation remains the same. The dam embankment and outlet works are unchanged and exhibit their historical integrity in all aspects.

Dam 326

Dam 326 is situated about 3-1/2 miles northwest, or downstream, of Dam 320 and is located in both McHenry County (Sec. 3, T159N, R78W) and Bottineau County (SE 1/4 Sec. 34 and SW 1/4 Sec. 35, T160N, R78W). The refuge headquarters are situated less than 1/4 mile southeast of the dam's west end (Figure 36).

Dam 326 is oriented along a northeast/southwest axis and consists of a homogeneous earthfill embankment, an emergency spillway, and outlet works. The earthfill embankment has a crest width between 12 and 18 feet and, including the spillway, is 9,435 feet long (Figures 37 and 38). Original plans for the dam reportedly called for the top soils at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.¹⁵ In the late 1940s, flood water topped the embankment, and in 1950, three additional feet of soil was laid along the crest.¹⁶ The current height of the embankment is 13 feet and its crest elevation is 1427.4 feet. The upstream slope of the embankment varies between 4:1 at the base, 12:1 at the middle section, and 5:1 at the upper section. The downstream slope of the embankment is 4:1. The embankment is vegetated with grass except at the west end of the downstream slope which has rock riprap for about 600 to 700 feet.



USGS 7.5"
 Upham (1950) &
 Kramer (1950)

Figure 36. Map showing the location of Dam 326.



Figure 37. View of Dam 326 embankment and spillway, looking northeast.



Figure 38. View of Dam 326 embankment showing downstream face as seen from the outlet works, looking northeast.



Figure 39. View of Dam 326 spillway showing concrete buttresses and cap added to the stone masonry weir wall, looking east.



Figure 40. Upstream view of Dam 326 outlet works, looking east.



Figure 41. Downstream view of Dam 326 outlet works, looking east.

The emergency spillway is an uncontrolled weir located along the crest of the embankment about 4650 feet northeast of the left abutment of the dam (Figure 39). The spillway was originally constructed as a 700-foot-long stone masonry wall with flared stone-masonry wing walls and a stone-masonry apron below the wall's downstream edge. Since then, most likely in the late 1940s, the stone-masonry wall was modified to its current configuration by the addition of a concrete cap and concrete buttresses that are spaced about 12 feet on center along its downstream face.¹⁷ Only the tops of the concrete cap and buttresses are currently visible. The crest elevation of the weir is 1421.1 feet.

The outlet works span the natural river channel and are located about 3600 feet southwest of the northeast abutment of the dam (Figures 40 and 41). The outlet works consist of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four, 15-foot-long by 10-foot-high walls (two end walls and two piers), which serve as supports to the radial gates. The downstream wing walls of the concrete structure are constructed of interlocking, corrugated sheet piling, and the upstream wing walls are concrete.

The radial gates each consist of a corrugated steel face (16 feet wide by 7 feet high) with channel-section supports and angle-section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates, however, the concrete walls between the gates extend downstream and serve as outlet structures. The outlets discharge into a stilling basin which consists of a plunge pool with a concrete apron.

The radial gates are operated by manual hoists. The hoist control for each gate is mounted on top of an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway along the structure's upstream side. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck with angle-section railing. Along its downstream side, the concrete structure also supports a concrete beam walkway which is protected by an angle-section rail. In 1950, the original height of the concrete structure was raised 3 feet by concrete caps which were added to the top of each of the end walls and piers, as well as both of the upstream wing walls. At this same time, the gate hoist controls, and the upstream and downstream walkways were removed and re-installed in their current locations.¹⁸

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic form of the embankment, spillway and outlet works is intact, and their overall function within the operation of the dam is unchanged.

Dam 332

Dam 332 is located about 3-1/2 miles northwest, or downstream, of the refuge headquarters near Dam 326 (N 1/2 Sec. 19 and NW 1/4 Sec. 20, T16N, R78W) and is situated in Bottineau County (Figure 42).

Dam 332 is a homogeneous earthfill embankment with an emergency spillway and outlet works. The earthfill embankment is oriented along a northeast/southwest axis and has a height of about 15 feet, a crest width of 12 feet, and a crest elevation of 1422 feet (Figure 43). The total length of embankment, including the spillway, is 4954 feet. The upstream side of the embankment has a slope of 5:1 along its upper section and a slope of 10:1 along its lower section. The downstream side of the embankment has a slope of 4:1. The surface of the embankment is vegetated with grass. Original plans for the dam reportedly called for the top soils at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.¹⁹

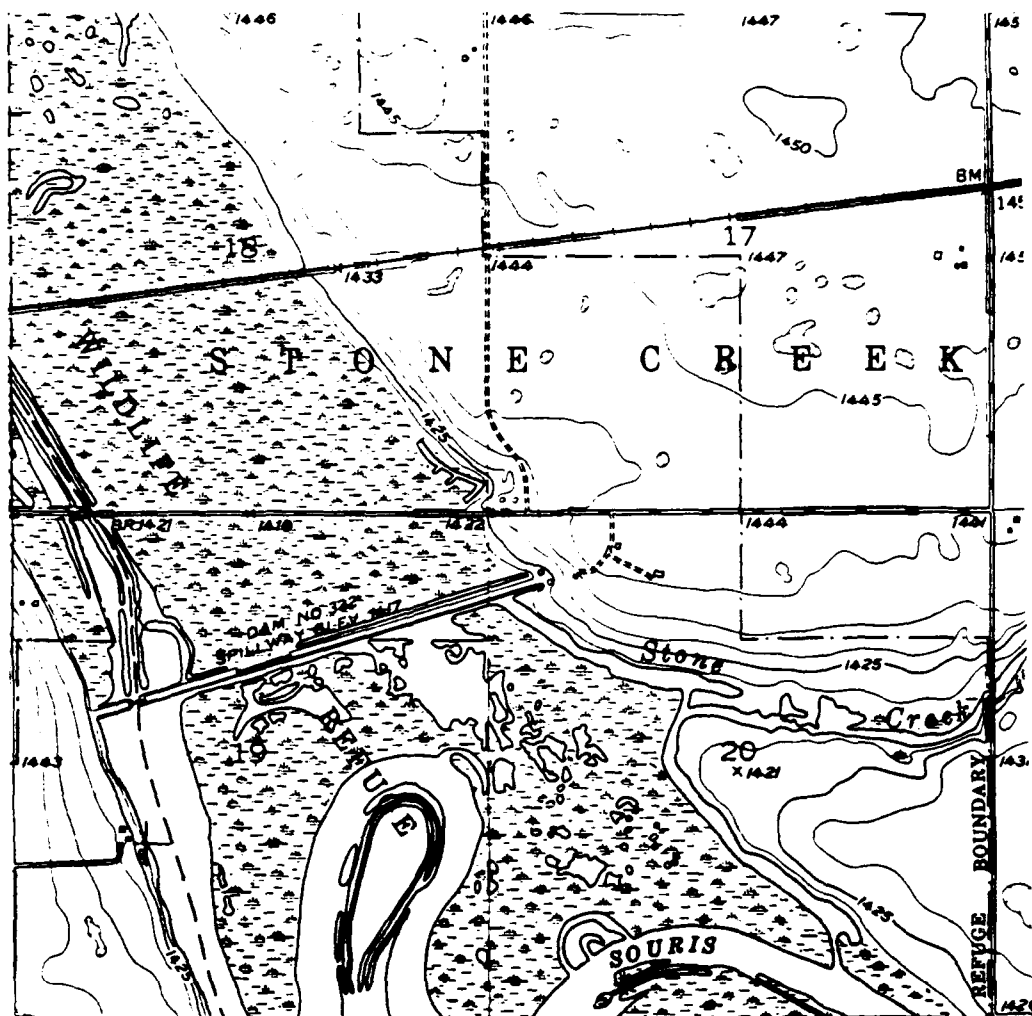
The emergency spillway is an uncontrolled weir located along the crest of the embankment about 2700 feet southeast from the left abutment (Figure 44). When originally constructed, the spillway was a 700-foot stone-masonry wall with flared, stone-masonry wing walls and a stone-masonry apron below its downstream edge. Since then, most likely in the late 1940s, the weir was modified by the addition of a concrete cap and concrete buttresses that are spaced about 12 feet on center along the wall's downstream face.²⁰ The current crest elevation of the weir is 1419.1 feet.

The outlet works are located at the southwest end of the dam and consist of a reinforced concrete structure with three radial gates (Figures 45 and 46). The concrete structure is comprised of four 16-foot-long by 15-foot-high walls (two end walls and two piers) which serve to support the radial gates. The downstream wing walls for the concrete structure are constructed of interlocking, corrugated sheet piling and upstream wing walls are concrete.

The radial gates each consist of a corrugated steel face (16 feet wide by 9 feet high) with channel-section supports and angle-section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates, however, the concrete walls between the gates extend downstream and serve as outlet structures. The outlet discharges into a stilling basin which consists of a plunge pool with a concrete apron.

The radial gates are operated by manual hoists. The hoist control for each gate is mounted on top of an adjacent concrete wall (Figure 47). Access to the hoist controls is provided by a cantilevered walkway along the structure's upstream side. The walkway is secured to the structure by angle-section knee-braces and consists of a plank deck and an angle-section rail. Along its downstream side, the concrete structure also supports a concrete beam walkway which is protected by angle-section railing. In 1949, the original height of the concrete structure was raised 3 feet by concrete caps which were added to the top of each of the end walls and piers, as well as to both of the upstream wing walls. At the same time, the gate hoist controls, and the upstream and downstream walkways were removed and re-installed in their current locations.²¹

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic forms of the embankment, spillway and outlet works are intact, and their overall function within the operation of the dam is unchanged.



0 3000 Feet



USGS 7.5"
Deep (1950)

Figure 42. Map showing the location of Dam 332.



Figure 43. View of Dam 332 embankment as seen from the left abutment, looking east.



Figure 44. View of Dam 332 spillway showing the concrete cap of stone masonry weir wall, looking west.



Figure 45. Upstream view of Dam 332 outlet works, looking northeast.



Figure 46. Downstream view of Dam 332 outlet works, looking southeast.



Figure 47. View of Dam 332 outlet works showing radial gate hoists, looking southeast.

Dam 341

Dam 341 is located in Bottineau County (N 1/2 Sec. 14, T161N, R79W) about nine miles northwest, or downstream, from the refuge headquarter near Dam 326 (Figure 48).

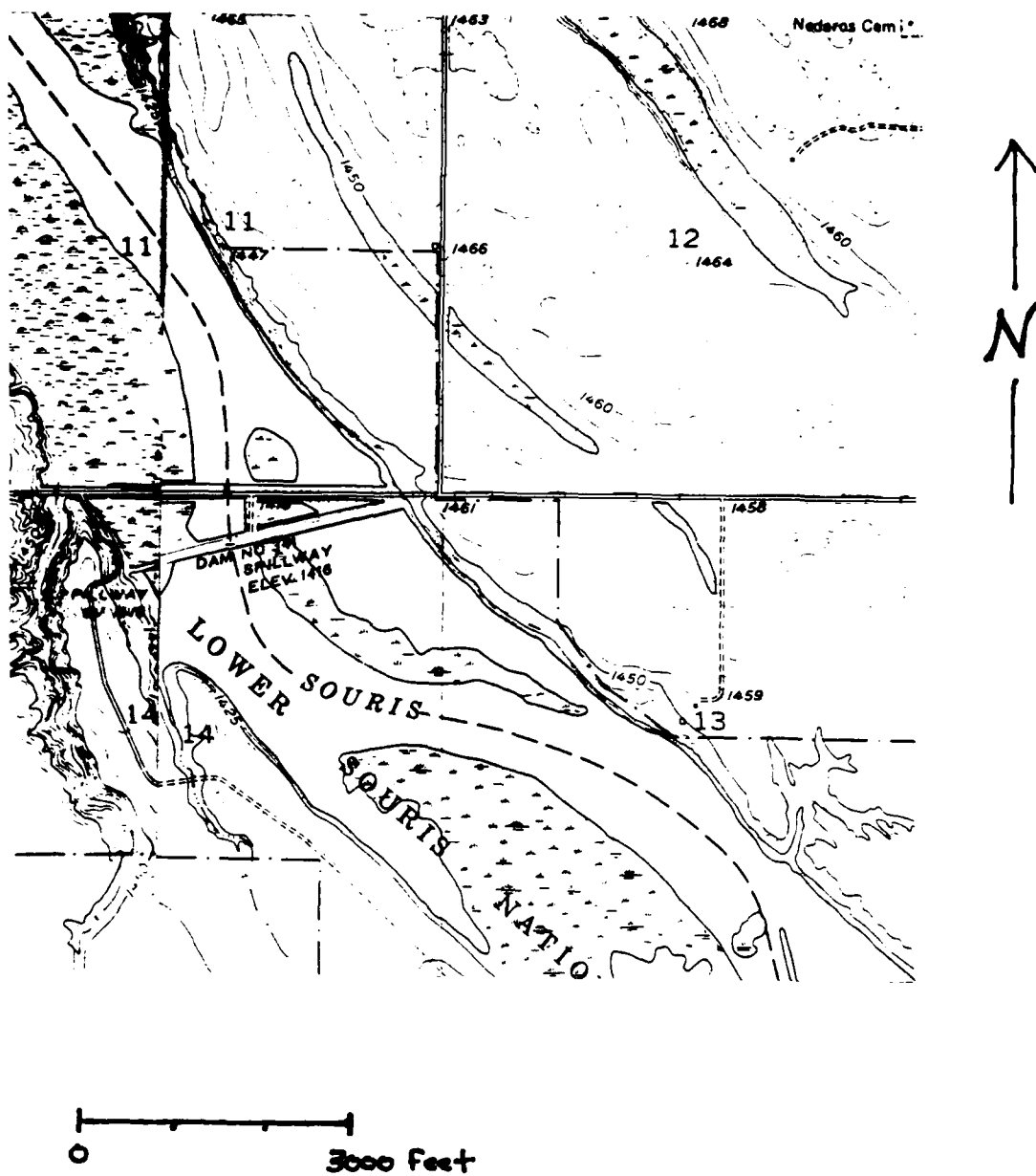
Dam 341 consists of a homogeneous earthfill embankment, an emergency spillway, and outlet works. The earthfill embankment has a crest width between 8 and 10 feet and, including the spillway, is 3293 feet long (Figures 49 and 50). Original plans for the dam reportedly called for the top soils at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.²² In the late 1940s, flood water topped the embankment and in 1950 three additional feet of soil was laid along the crest.²³ The current height of the embankment is 15 feet and its crest elevation is 1422.1 feet. The upstream slope of the embankment varies between 6:1 along its upper section and 10:1 along its lower section. The downstream slope of the embankment is 4:1. The embankment is vegetated with grass.

The emergency spillway is an uncontrolled weir located along the embankment crest at the west end of the dam (Figure 51). When it was originally constructed, the spillway consisted of a 700-foot-long stone-masonry wall with stone-masonry wing walls and a stone-masonry apron below its downstream edge. Since then, most likely in the late 1940s, the stone-masonry wall was modified by the addition of a concrete cap and concrete buttresses that are spaced 12 feet on center along its downstream side.²⁴ The current crest elevation of the weir is 1421.1 feet.

The outlet works span the main river channel and are located about 1300 feet east of the left abutment of the dam (Figures 52 and 53). The outlet works consist of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four 16-foot-long by 15-foot-high walls (two end walls and two piers) that serve to support the radial gates. The downstream wing walls of the concrete structure are constructed of interlocking, corrugated sheet piling. The upstream wing walls are concrete.

The radial gates each consist of a corrugated steel face (16 feet wide by 9 feet high) with channel-section supports and angle-section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates. The concrete walls between the gates extend downstream and serve as outlet structures. The outlet discharges into a stilling basin which consists of a plunge pool with a concrete apron.

The radial gates are operated by manual hoists. The hoist control for each gate is mounted on top of an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway along the structure's upstream edge. The walkway is secured to the structure by angle-section knee-braces and consists of a plank deck and an angle-section rail. Along its downstream side, the concrete structure also supports a concrete beam walkway that is protected by an angle-section rail. In 1949, the original height of the concrete structure was raised 3 feet by concrete caps that were added to the



USGS 7.5"
 Landa SW (1950) &
 Landa SE (1950)

Figure 48. Map showing the location of Dam 341.



Figure 49. View of Dam 341 embankment as seen from the right abutment, looking west.



Figure 50. View of Dam 341 embankment, looking west.



Figure 51. View of Dam 341 spillway showing concrete buttresses and cap added to the stone masonry weir wall.



Figure 52. Downstream view of Dam 341 outlet works, looking southwest.

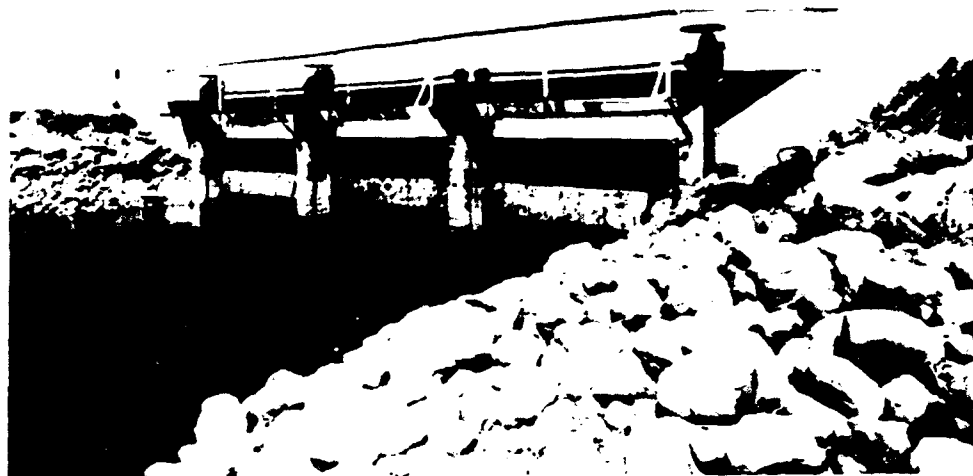


Figure 53. Upstream view of Dam 341 outlet works, looking northwest.

top of each of the end walls and piers, as well as to both of the upstream wing walls. At the same time, the gate hoist controls and the upstream and downstream walkways were removed and re-installed in their current locations.²⁵

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic forms of the embankment, spillway and outlet works are intact, and their overall function within the operation of the dam is unchanged.

Dam 357

Dam 357 is the farthest north, or downstream, of the five dams at the J. Clark Salyer refuge (Figure 54). It is located in Bottineau County, about one mile south of the United States-Canada border and nearly 25 miles northwest, or downstream of the refuge headquarters (S 1/2 Sec. 31, T164N, R79W). Built after the refuge was enlarged to the north, Dam 357 is the last of the five major dams on the refuge to be constructed.

Dam 357 consists of a homogeneous earthfill embankment, an emergency spillway, and outlet works. The crest length of the entire structure is about 3070 feet. The west half of the dam is oriented along an east/west axis while the east section of the structure lies on a southeast/northwest axis. During construction of the dam, fill for the embankment was hauled to the site by truck²⁶ and apparently consisted mostly of gravel. In the late 1940s, flood water topped the embankment, and in 1951 three additional feet of earthfill was laid along the crest.²⁷ The crest of the embankment currently is 12 feet wide, 16 feet high, and at an elevation of 1418.6 feet. The upstream face of the embankment has a slope of 5:1 and is covered by river cobbles. The downstream slope is 4:1 and is vegetated with grass.

The emergency spillway is located at the east end of the dam and lies along the crest of the embankment. The spillway is a 700-foot long weir wall with a 2-bay stop log structure located near its midpoint (Figures 55 and 56). When it was originally constructed, the weir wall was of stone-masonry construction with stone-masonry wing walls, and a stone-masonry apron and riprap below the wall's downstream edge. In the late 1940s, the stone masonry wall was modified by the addition of a concrete cap and concrete buttresses spaced 12-feet on center along its downstream face (Figure 57).²⁸ Two of concrete buttresses are inscribed. One bears the phrase "dedicated to a duck" and another the name "C.J. Henry." C.J. Henry was a junior biologist at the refuge when work on the project first began in 1935-36, and by 1939 he was the refuge manager.

The main outlet works for the dam span the main river channel about 900 feet west-northwest of the right abutment (Figures 58, 59, and 60). It consists of a reinforced-concrete structure with three radial gates. The concrete structure is comprised of four, 18-foot long by 16-foot high walls (two end walls and two piers), which serve to support the radial gates. The downstream wing walls of the concrete structure are constructed of interlocking, corrugated sheet piling and upstream wing walls are concrete.

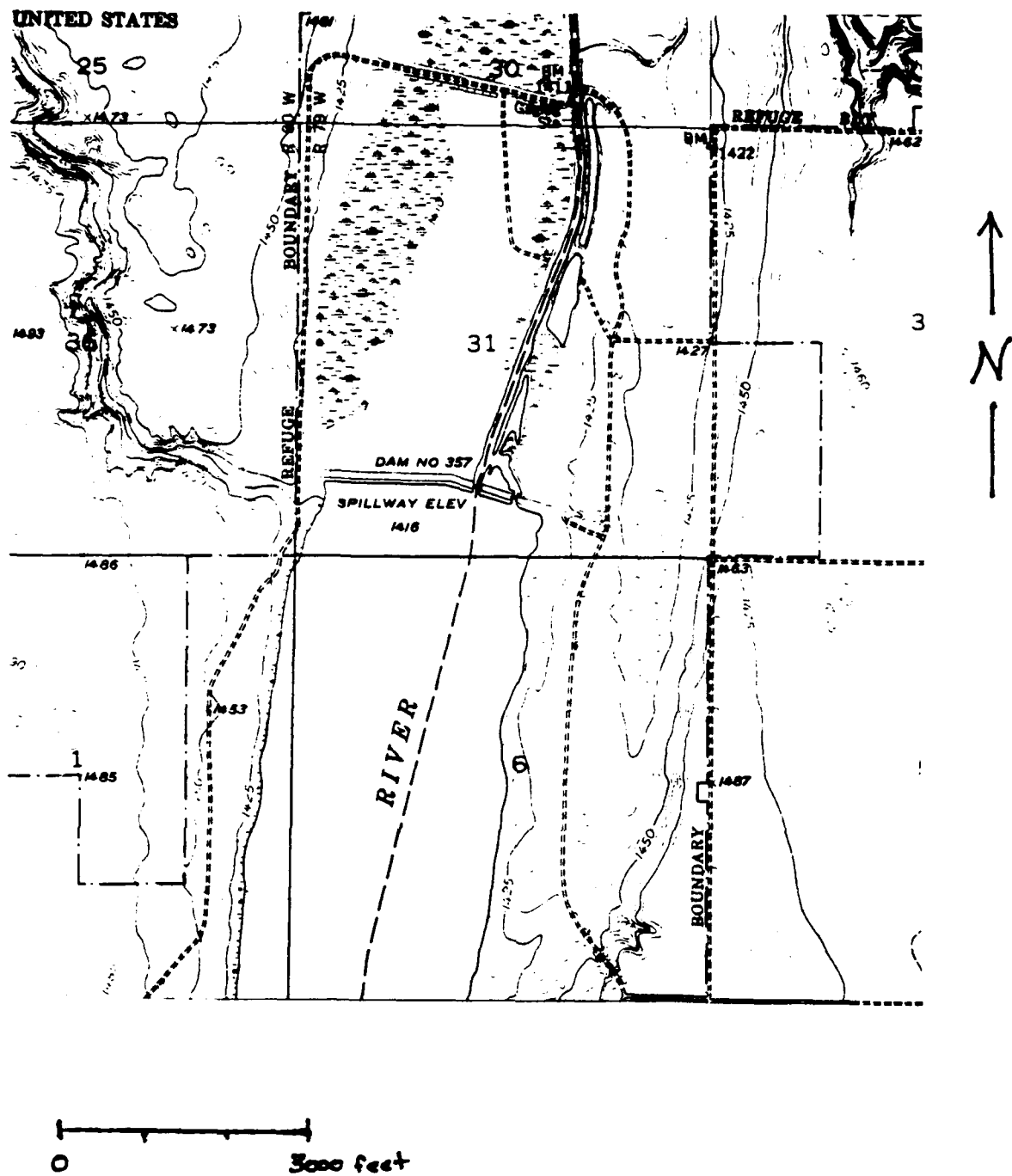


Figure 54. Map showing the location of Dam 357.



Figure 55. Historic view (1937) of Dam 357 spillway showing the stone masonry weir wall and apron.

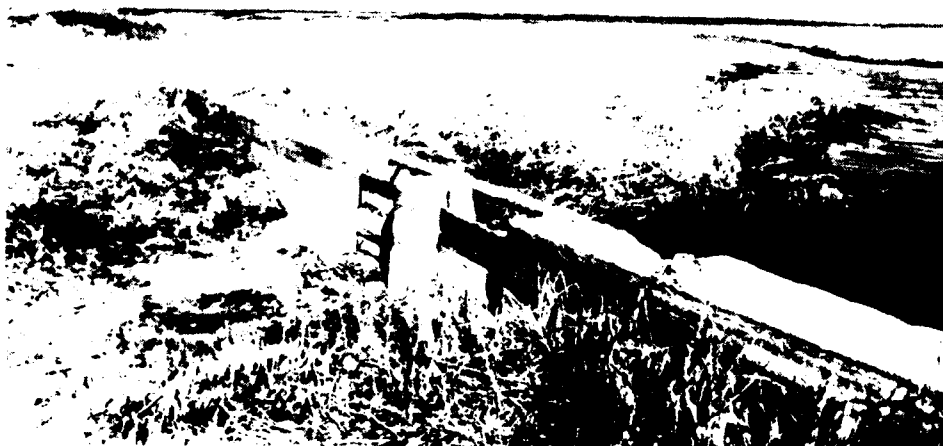


Figure 56. View of Dam 357 spillway showing stop log structure situated along the weir wall, looking northwest.



Figure 57. View of Dam 357 spillway showing concrete buttresses added to the stone masonry weir wall, and the east wing wall, looking west.



Figure 58. Historic view (ca. 1938) of upstream side of Dam 357 outlet works (main structure).



Figure 59. Upstream view of Dam 357 outlet works (main structure), looking northwest.



Figure 60. Downstream view of Dam 357 outlet works (main structure), looking southwest.

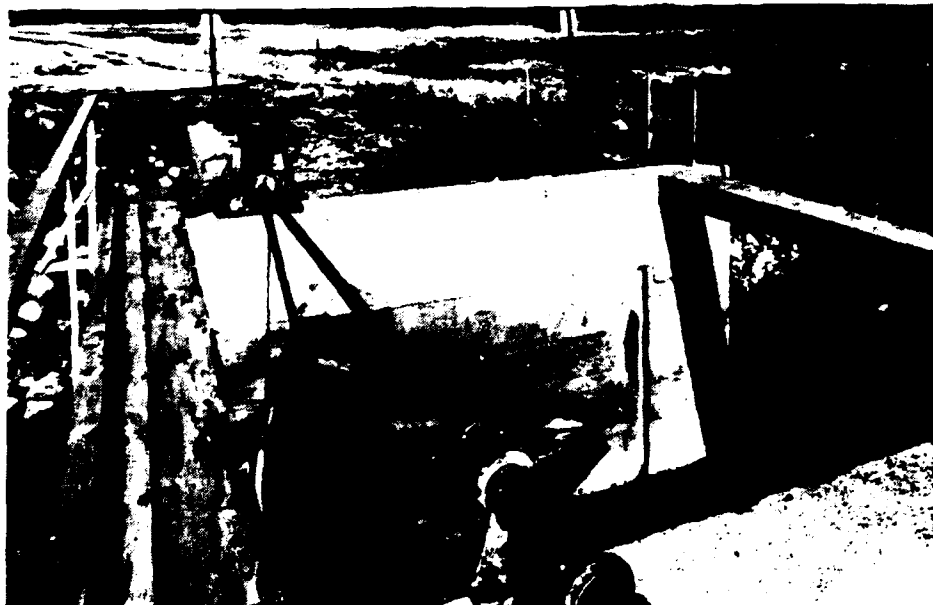


Figure 61. View of Dam 357 outlet works (main structure) showing detail of radial gate hoist, looking northwest.

The radial gates each consist of a corrugated steel face (16 feet wide by 10 feet high) with channel section supports and angle-section radials (Figure 61). The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates. The concrete walls between the gates extend downstream and serve as outlet structures. The radial gates are operated by manual hoists. The hoist control for each gate is mounted on top of an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway along the concrete structure's upstream edge. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck with angle-section railing. Along its downstream side, the concrete structure also supports a concrete beam walkway protected by angle-section railing. In 1951, the original height of the concrete structure was raised 3 feet by concrete caps that were added to the top of each of the end walls and piers, as well as to both of the upstream wing walls. At the same time, the gate hoist controls and the upstream and downstream walkways were removed and re-installed in their current locations.²⁹

Soon after the dam was constructed, a low level outlet was installed consisting of a 36-inch diameter concrete pipe. Located near the left abutment, the pipe extends through the embankment and at its upstream opening has a concrete bulkhead with a slide gate control.³⁰ The pipe was apparently plugged several years ago.³¹

In the mid-1960s, another low-flow outlet was constructed to the west of the main outlet works. This modern structure was designed to control release flows to Canada as mandated by international treaty and consists of a concrete bulkhead with slide gates and two conduits.³² The concrete bulkhead is located on the upstream side of the embankment and is flanked by retaining walls which extend upstream and serve as an intake. A trashrack is hinged on the upstream face of the bulkhead. The top of the bulkhead is open but protected by steel grating. The bulkhead structure is about 8 feet wide, 7 feet long and is divided into two chambers by an 8-inch-thick concrete wall. At the upstream end of each of the chambers is an "orifice" slide gate (30 inches wide and 24 inches high) while at the downstream end of each of the chambers is a "turnout" slide gate (24 inches in diameter). Each of the gates is set in 4-foot frames with non-projecting stems. The "turnout" slide gates each open into a concrete pipe (24 inches in diameter). Both of the pipes extend through the embankment and discharge on the downstream side of the dam.

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic forms of the embankment, spillway and outlet works are intact, and their overall function within the operation of the dam is unchanged.

CCC Camp Ding

The site of CCC Camp Ding (NW 1/4 Sec. 20, T160N, R78W) is located on a gentle, southwest-facing slope along the west edge of marshes created by the impoundment of the Souris River. The site is situated in Bottineau County and lies immediately east of the right abutment of Dam 332 (Figure 62).

During its period of occupation, 1935-1941, Camp Ding contained about 30 buildings that included domestic structures for camp personnel as well as auxiliary facilities such as work shops, garages, and storage buildings. Most, if not all, of these buildings were wooden structures on concrete foundations.³³ About five years after the camp was abandoned by the CCC, the Fish and Wildlife Service in 1946 transferred the camp buildings to the towns of Minot and Kramer. City officials at Minot requested the camp buildings to provide temporary housing for workers constructing the Veterans Hospital and apparently located them on 4-H property adjacent to the city fairgrounds.³⁴

The remains of 17 buildings or structures (Features 1-17), exist at the site of Camp Ding, consisting primarily of the remnants of concrete foundations (Figures 63 and 64). Following is a descriptive list of the 17 site features. The historic function for a few of the features is based on interpretations made from CCC records listing all of the camp facilities by function and overall dimensions.

Feature 1: consists of a semi-circular mound (18 feet east/west by 35 feet north/south) with remnants of a low concrete foundation wall along its east edge.

Feature 2: consists of a 3-walled stone masonry structure (4 feet east/west by 7 feet north/south). Extending across the top width of the structure are parallel, steel square bars.

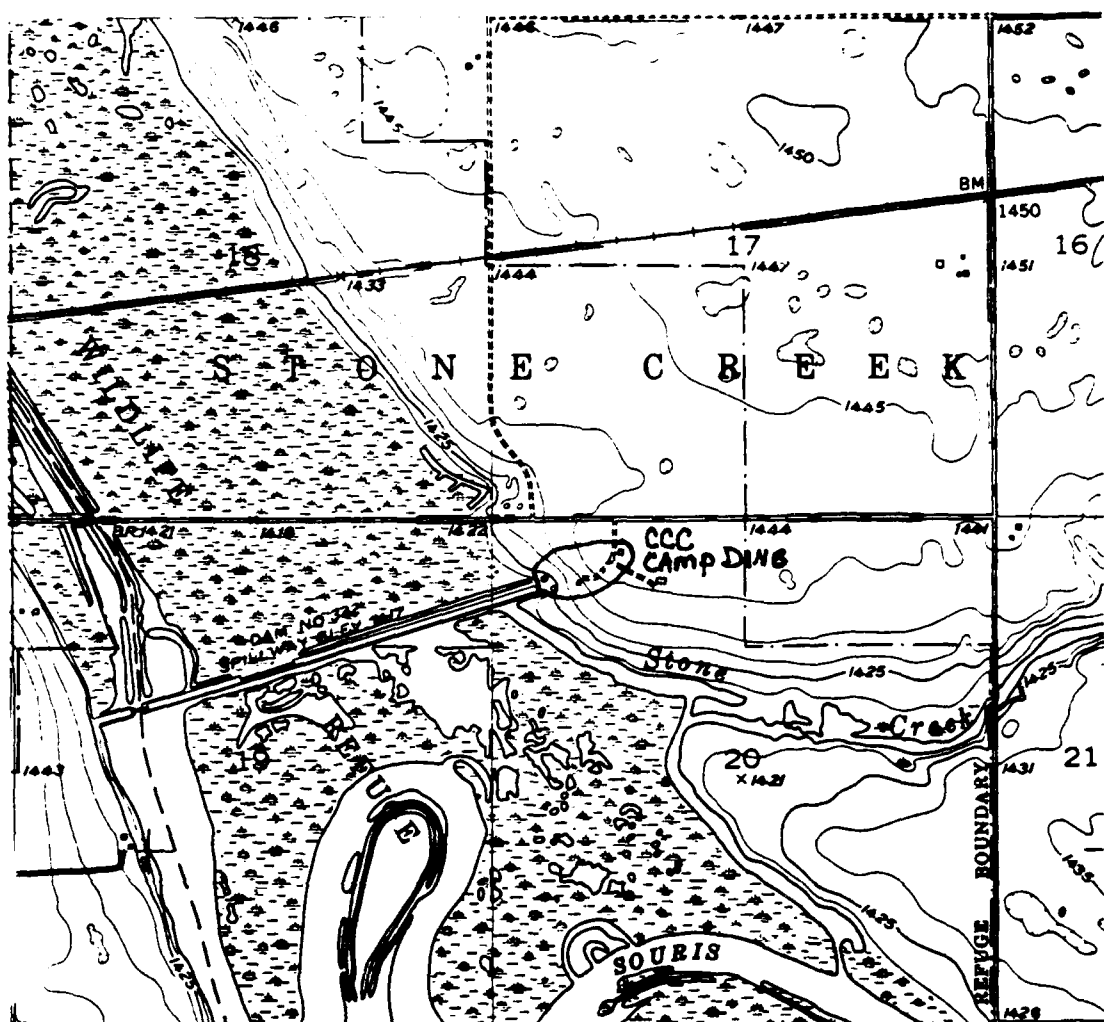
Feature 3: consists of a concrete slab foundation (7 feet east/west by 18 feet north/south). Embedded at the northeast corner of the slab is a metal pipe.

Feature 4: is a standing concrete structure that likely represents the remains of a larger building, such as the ice box for a food storage building (Figure 65). The rectangular structure (5 feet 5 inches east/west by 7 feet north/south) has a flat roof and is set on a concrete base formed by 2-foot 6-inch-high walls. On the north wall of the structure is an open doorway. The structure interior is an open room with wood shelving on the walls and a light fixture centered on the ceiling. Also inside the structure is scattered debris, including metal cook pots, cans, and glass jars.

Feature 5: consists of a concrete slab foundation (20 feet east/west by 40 feet north/south)

Feature 6: consists of a concrete slab foundation (30 feet east/west by 50 feet north/south).

Feature 7: consists of a shallow, stone-lined pit or basin (4 feet east/west by 8 feet north/south). Along the west edge of the pit is a steel pipe embedded into a low stone masonry pile.



0 3000 feet



USGS 7.5"
Deep (1950)

Figure 62. Map showing the location of CCC Camp Ding.

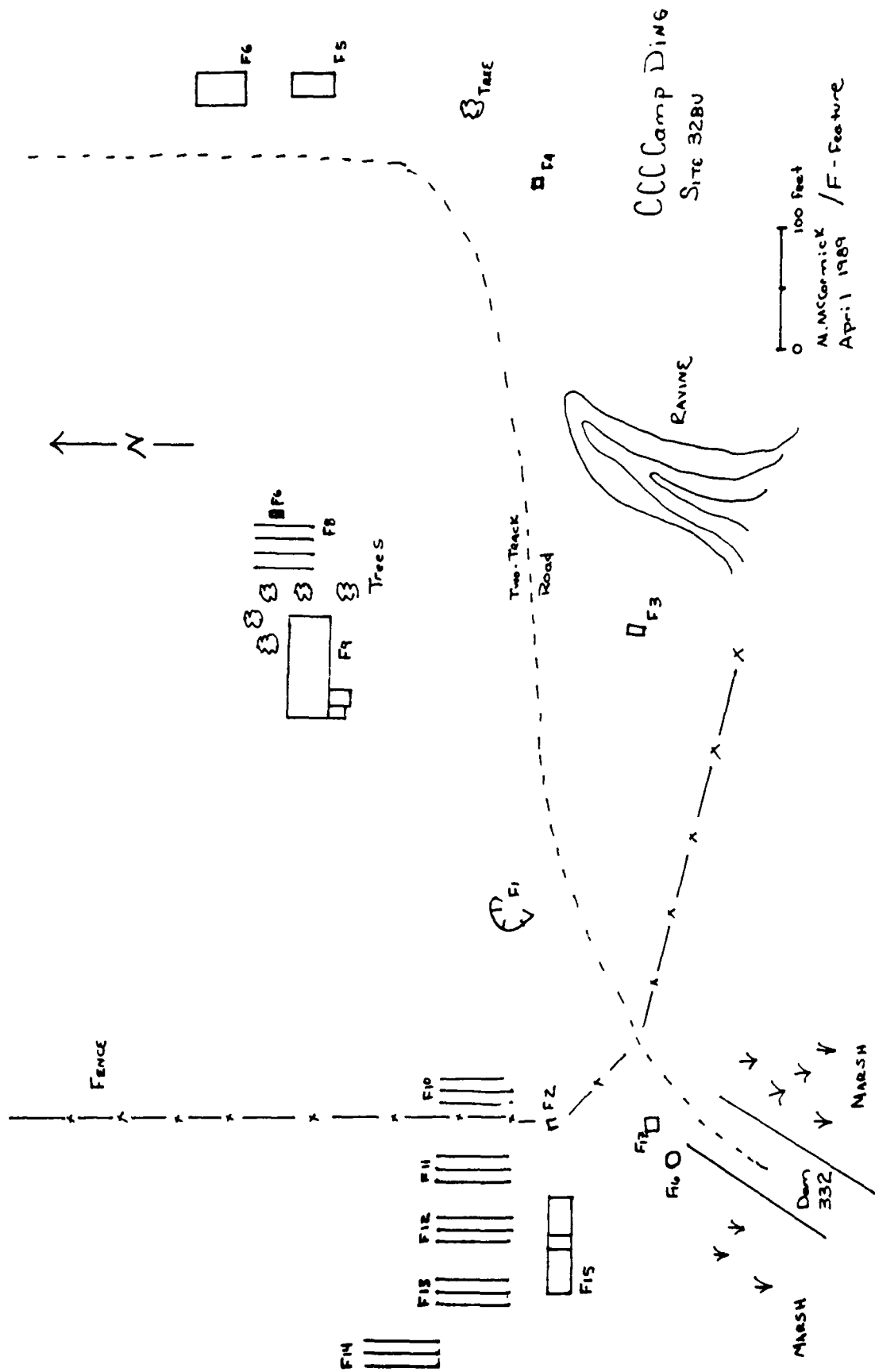


Figure 63. Sketch map of the site of CCC Camp Ding.



Figure 64. General overview of the CCC Camp Ding from the south end of the site looking north showing Feature 1: concrete foundation and mound at left center and Feature 15: concrete foundation slab and footings (bathhouse and latrine remains ?) at tree at far left center.

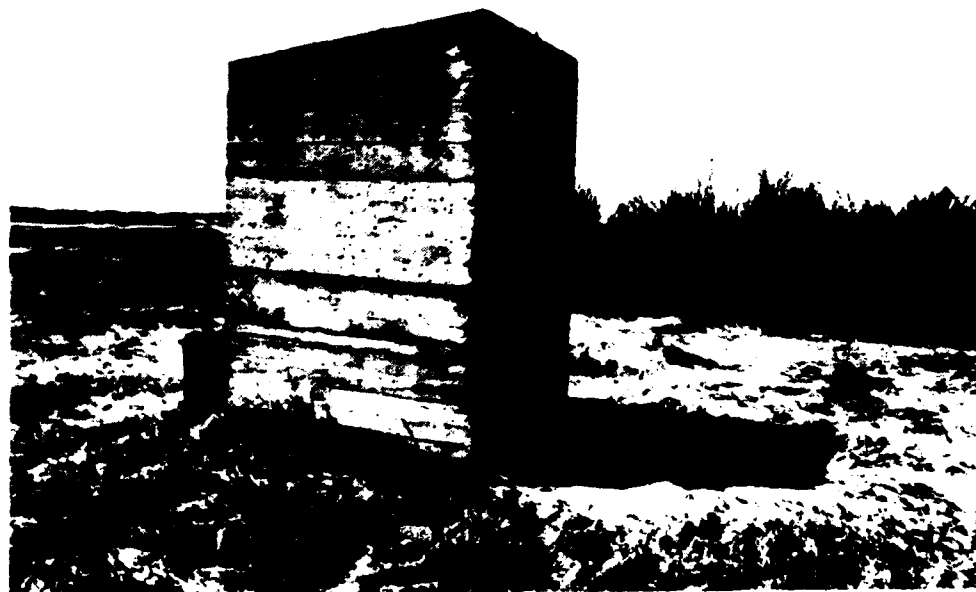


Figure 65. Feature 4: standing concrete structure (partial building remains), view to the southwest showing north and east walls.



Figure 66. Feature 9: concrete foundation slabs and low walls, view to the west.



Figure 67. Feature 14: concrete foundation walls (bunkhouse remains?), view to the north.



Figure 68. Feature 15: concrete foundation slabs and low walls (bathhouse and latrine remains?), view to the west.



Figure 69. Feature 16: concrete slab foundation (center foreground), Feature 17: circular concrete fountain (far right), and Dam 332 embankment (center); view to the south.

Feature 8: consists of four parallel concrete walls which likely represent the foundation remains of a barracks or the camp headquarters building. Overall feature dimensions are 60 feet north/south by 40 feet east/west.

Feature 9: consists of several low concrete walls which form a rectangular foundation (106 feet east/west by 42 feet north/south). At the southwest end of the foundation there is a 10-foot by 10-foot concrete slab adjoined on the south by a 15-foot by 20-foot concrete slab (Figure 66). This feature may represent the remains of the camp kitchen and mess hall.

Features 10-14: these five features each consist of three parallel concrete walls (Figure 67). Each has overall dimensions of 60 feet north/south by 40 feet east/west and each likely represents the foundation remains of a barracks.

Feature 15: consists of two rectangular concrete slabs separated by two low concrete walls (Figure 68). The western-most slab has three pipe drains at the center while the eastern-most slab has ten pipe drains evenly spaced along its south edge. This feature (100 feet east/west by 20 feet north/south) likely represents the remains of the camp's bath, latrine and laundry facility.

Feature 16: consists of a 10-foot by 10-foot concrete slab (Figure 69).

Feature 17: consists of a five-tiered circular fountain constructed of poured concrete (Figure 69). The fountain is about 16 feet in diameter, extends about 5 feet below the ground surface, and is encompassed by a circular metal railing. Protruding from the top tier of the fountain is a metal pipe.

Cultural debris is sparsely scattered on the site surface and includes metal and glass fragments, metal stove parts, and a few metal barrels. The site area is overgrown with tall, mixed grass and has a few trees.

Camp Ding has lost all integrity of design, materials, workmanship, feeling, and association. The site no longer retains the ability to evoke its historic identity as a CCC Camp.

ENDNOTES

1. U.S. Department of Agriculture, Bureau of Agricultural Engineering, drawing no. 3a-G, "Upper Souris ... Plan, Profile, and Typical Section, Structure No. 83," July 1937, included as attachment to Gene M. Elliott and Glc. D. Cheney to Chief, Inspections Branch, Memorandum serving as the preliminary SEED inspection report for the Upper Souris Dam 83, 30 October 1982, copy on file at the Headquarter Offices of the Upper Souris National Wildlife Refuge, North Dakota; Minot Daily News, 21 Sept. 1935, p. 1.; Irv

Rostad, personal interview with Mary E. McCormick, Upper Souris Wildlife Refuge Headquarters, 17 April 1989.

2. Minot Daily News, 24 Sept. 1935, p. 1.

3. Bureau of Agricultural Engineering, drawing no. 3a-G, "Upper Souris...Plan, Profile... Structure No. 83;" Minot Daily News, 21 Sept. 1935, p. 1.

4. Elliott and Cheney, Memorandum serving as the preliminary SEED report for Dam 83, p. 7.

5. Alterations to the service spillway are cited from Elliott and Cheney, Memorandum on the preliminary SEED report for Dam 83, p. 13

6. Ibid., p. 25.

7. Ibid.

8. Ibid., p. 28.

9. Terry L. Clayton and Delano Jenkins, "Upper Souris Dam 96, Federal Inventory No. ND 00331: Intermediate Seed Inspection Report, October 26, 1988," p. 7, report prepared for the U.S. Fish and Wildlife Service, January 1989.

10. Camp Disposition Completion Report: FWS-1, N.D., Entry 131-Records of the Office of the Director, CCC Liquidation Unit, 1933-1953 (box 30, FWS-1 folder), Records Group 35-Records of the Civilian Conservation Corps, State Directors Correspondence, National Archives, Washington, D.C.

11. Colonel Wm. F. Pearson to the Director of the CCC, 15 September 1942, Entry 131 (box 31, FWS-1 folder), RG 33, National Archives; Irv Rostad interview; Kurt P. Schweigert, Historical Cultural Resource Survey of the Upper Souris River, North Dakota, p. 38, report prepared by the Department of Archeology and Anthropology, University of North Dakota, under contract to the U.S. Army Corps of Engineers, St. Paul District, 1979.

12. Irv Rostad interview.

13. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 320, J. Clark Salyer National Wildlife Refuge, McHenry County, North Dakota, Federal Inventory Number ND 00329," p. 10, report prepared for the U.S. Fish and Wildlife Service, June 1984.

14. In 1946, drawings were prepared for repairs to the stone masonry weir of the spillway for Lower Souris (J. Clark Salyer) Dam 357. These repairs called for the same modifications as those exhibited by this structure, i.e., new concrete cap, and concrete buttresses. Therefore, it is assumed that the spillway for both of these dams, as well as the three other dams at this refuge, were altered around this same time, see: drawing M-No. DAK. 3-30, "Lower Souris: Improvements to Dam 357 Spillway," July 1946, included as

attachment C-11 to, Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam #357, J. Clark Salyer National Wildlife Refuge, Bottineau County, North Dakota, Federal Inventory Number ND 00325," report prepared for the U.S. Fish and Wildlife Service, June 1984.

15. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 326, J. Clark Salyer National Wildlife Refuge, McHenry County, North Dakota, Federal Inventory Number ND 00328," p. 10, report prepared for the U.S. Fish and Wildlife Service, June 1984.

16. Ibid., p. 14.

17. see note 14.

18. Details of alterations to the outlet works are provided by drawing M-No. Dak. 3-321, "Lower Souris: Raising Radial Gate Control Structures on Dams 326, 332, 341, & 357," Sept. 1949, revised July 1950, included as attachment C-12 to, Marshall and Clayton, "Inspection Report, Dam 357."

19. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 332, J. Clark Salyer National Wildlife Refuge, Bottineau County, North Dakota, Federal Inventory Number ND 00328," p. 10, report prepared for the U.S. Fish and Wildlife Service, June 1984.

20. see note 14.

21. See note 18.

22. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 341, J. Clark Salyer National Wildlife Refuge, McHenry County, North Dakota, Federal Inventory Number ND 00326," p. 10, report prepared for the U.S. Fish and Wildlife Service, June 1984.

23. Ibid., p. 11.

24. See note 14.

25. See note 18.

26. Fox and Clayton, "Inspection Report, Dam 357," p. 11.

27. Ibid.

28. See note 14.

29. See note 18.

30. U.S. Department of Agriculture, Bureau of Biological Survey, drawing M-N.Dak: 3-24, "Lower Souris Exten.: Pipe & Gate Outlet Control at Dam No. 357," included as attachment C-10 to Fox and Clayton, "Inspection Report: Dam 357."

31. Fox and Clayton, "Inspection Report: Dam 357," p. 10.

32. Ibid., p. 10, and attachment C-14, U.S Department of the Interior, Fish and Wildlife Service, Drawing no. 3R-No, Dak.-165-54, "Lower Souris: Water Control Structure Plan and Elevation," December 1965, revised October 1966.

33. Description of Articles, n.d. and Shipping Ticket: Camp FWS-4, Kramer, North, Dakota, CCC Property Officer to C.J. Henry, Refuge Manager, June 8, 1942, Entry 131 (box 31, FWS-4 folder), RG 35, National Archives.

34. Jay W. Bliss, City of Minot Manager, to M.A. Stephens, CCC Liquidation Director, 9 Nov. 1945; and Charles H. Gerner, CCC Departmental Representative to M.A. Stephens, 26 Oct. 1946, Entry 131 (box 31, FWS-4 folder), RG 35, National Archives.

SUMMARY OF RESULTS AND RECOMMENDATIONS

The cultural resource inventory for this project determined that the two CCC camps, Camps Maurek and Camp Ding, do not meet registration requirements for listing on the National Register of Historic Places. Both camps have lost physical integrity and neither retains the ability to recall its historic identity or character as a CCC facility. Furthermore, because information about CCC camps is very well documented in the written record, neither of the camp sites has the potential to yield additional important information.

The cultural resource inventory for this project, however, determined that the three earthfill dams (Dams 83, 87, and 96) at the Upper Souris National Wildlife Refuge and the five earthfill dams (Dams 320, 326, 332, 341, and 357) at the J. Clark Salyer National Wildlife Refuge are all eligible for listing on the National Register of Historic Places. All eight of the dams have historical significance because of their important association with the development of the national wildlife refuge system during the New Deal era (Criterion A). All eight of the dams also derive significance as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat (Criterion C). All eight of the dams retain integrity and clearly recall their historic associations. Findings of the inventory further conclude that the eight dams are eligible for National Register listing as individual structures linked under a Multiple Property grouping (see the Determination of Eligibility section of this report).

In the course of the inventory, several other resources with potential historical value were also identified at both the Upper Souris and J. Clark Salyer National Wildlife refuges. These resources include several other water diversion structures (for examples see Figures 70-72), several historic buildings and structures at both of the refuge headquarters (for examples see Figures 73-78), as well as numerous designed landscape features such as ponds, marshes, nesting islands, and tree rows, etc. As a consequence, RTI recommends that the two refuges should each be evaluated as historic districts in accordance with the National Register's "Bulletin 18" and "Bulletin 30," which provide guidelines for evaluating and nominating designed historic landscapes and rural historic landscapes, respectively.

Among the kinds of resources that "Bulletin 18" describes how to evaluate as designed landscapes are botanical gardens, parks, and recreation grounds. Eligible designed landscapes are significant primarily for their artistic or landscape architecture values. Although the wildlife refuges were not necessarily designed with aesthetic considerations, their designs embody certain technical skills important to the field of landscape architecture. Moreover, although the wildlife refuges were intended to provide an enhanced environment for waterfowl and other wildlife, they are by no means natural environments. The refuges were designed and constructed and continue to be manipulated and controlled to create and maintain environments capable of supporting greater concentrations of waterfowl than natural areas could. The guidelines in "Bulletin 18" suggest methods for surveying, describing, and evaluating landscapes by looking at such features as existing land forms,

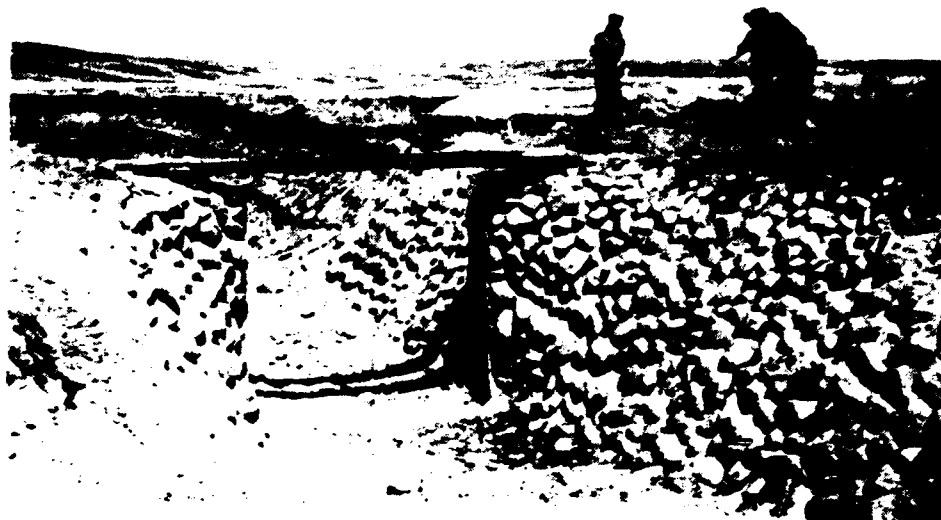


Figure 70. Historic view (1936) showing diversion channel and stop log structure built by the CCC between Ponds A and B at the Upper Souris Refuge.



Figure 71. Stone Masonry Dam 1 at the J. Clark Salyer Refuge, built by the CCC in 1936-37.



Figure 72. Stone Masonry Dam 2 at the J. Clark Salyer Refuge, built by the CCC in 1936-37.



Figure 73. Residence at the Upper Souris Refuge Headquarters, built ca. 1935-36.

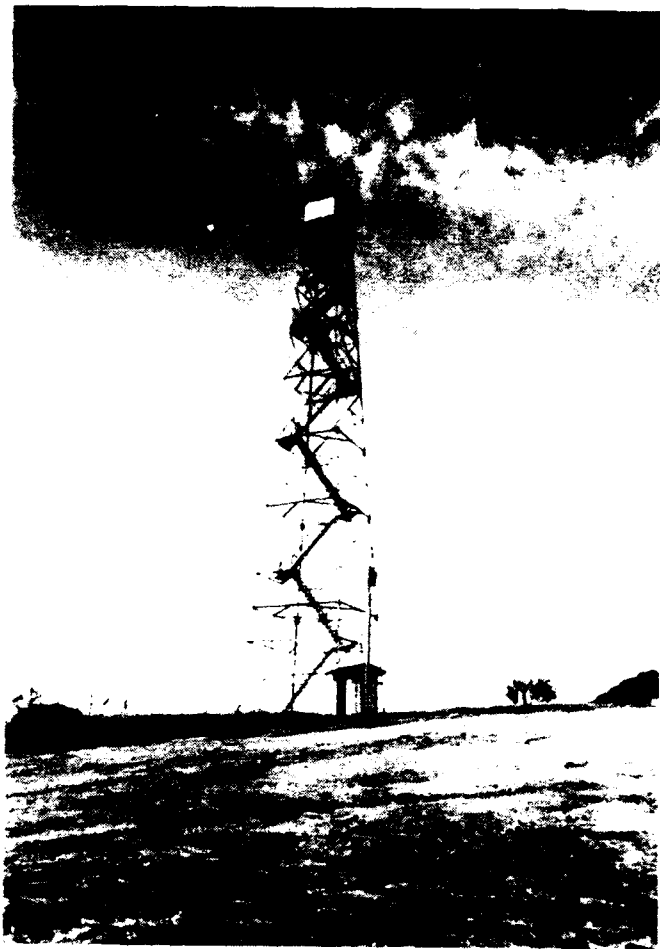


Figure 74. Lookout Tower at the Upper Souris Refuge Headquarters, built in 1935.



Figure 75. Original Office Building at the J. Clark Salyer Refuge Headquarters, built in 1935.



Figure 76. Farm Dwelling moved to the J. Clark Salyer Refuge Headquarters in 1935.



Figure 77. Storage Building at the J. Clark Salyer Refuge Headquarter, built in 1935.

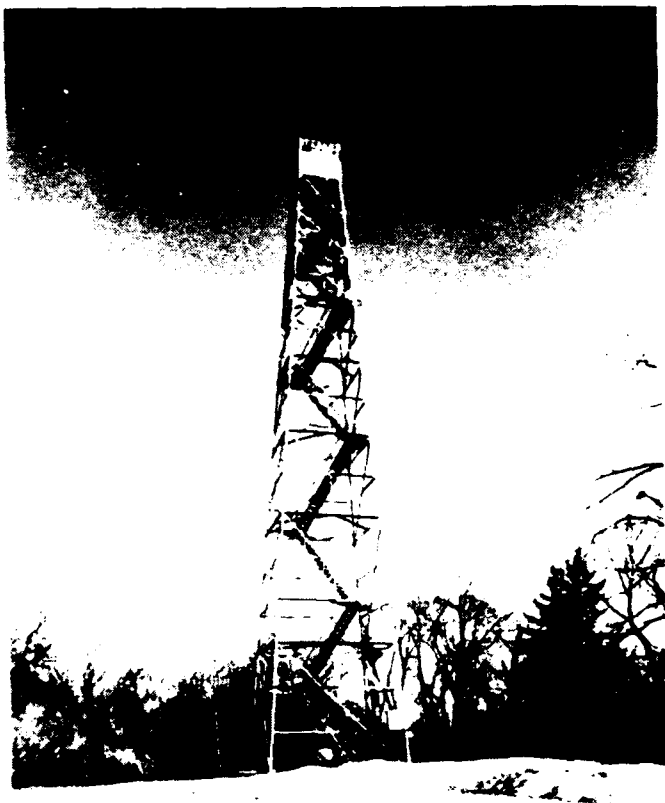


Figure 78. Lookout Tower at
the J. Clark Salyer Refuge
Headquarters, built in 1935.

circulation systems, buildings and structures, vegetation, bodies of water, and spatial relationships. Although intended for analysis of designed landscapes with artistic values, these methods will also be useful in determining the significance of the designed landscapes of the wildlife refuges.

"Bulletin 30" defines a rural historic landscape as "a geographical area that has been used, shaped, or modified over time by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of historic landscape features, including areas of land use, buildings, vegetation, roads, waterways, and natural features." While features within rural landscapes may have been designed, the broader landscapes have not, but rather have evolved through human use. Nevertheless, the analytical methods suggested in "Bulletin 30" will also be useful in determining the significance of the wildlife refuges. The bulletin describes how to analyze the processes (patterns of spacial organization, land uses and activities, responses to natural features) and components (circulation networks, boundaries, vegetation, structural types, and cluster arrangements) of landscapes.

By evaluating the wildlife refuges as historic landscapes, the eight refuge dams themselves would be treated as contributing components of National Register historic districts, rather than as individual properties linked under a Multiple Property grouping. This method would better place the dams in their historic and functional contexts and would lead to a more complete determination of their significance. Furthermore, by evaluating the refuges as historic landscapes, other features not recorded or evaluated by this project would be considered. This would allow federal agencies to more fully consider the impacts of proposed actions on historically significant resources at the refuges.

DETERMINATION OF ELIGIBILITY

Earthfill dams at the J. Clark Salyer National Wildlife Refuge and Upper Souris National Wildlife Refuge are eligible for the National Register of Historic Places as individual structures linked under a Multiple Property grouping entitled, "Wildlife Refuge Dams Built Along the Souris River in North Dakota During the New Deal Era, 1935-1937." The historic contexts related to this grouping are: "Development of the National Wildlife Refuge System during the New Deal Era, 1934-1942," and "Restoration of Wildlife Habitat in North Dakota during the New Deal Era, 1934-1942."

STATEMENT OF SIGNIFICANCE

All five of the earthfill dams at the J. Clark Salyer National Wildlife Refuge (Dams 320, 326, 332, 341, and 357) and all three of the earthfill dams at the Upper Souris Wildlife Refuge (Dams 83, 87, and 96) are eligible for listing on the National Register of Historic Places under Criterion A for their significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of these dams along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Construction of Dam 83 at the Upper Souris refuge further insured an adequate water supply to habitat areas at both refuges. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and, as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system. All eight of the dams retain integrity and clearly recall their historic association with the monumental efforts by the federal government during the New Deal era to provide work relief for the nation's unemployed as well as establish a national wildlife refuge system for the preservation, propagation, and protection of the nation's waterfowl resources.

All five of the earthfill dams at the J. Clark Salyer National Wildlife Refuge (Dams 320, 326, 332, 341, and 357) and all three of the earthfill dams at the Upper Souris Wildlife Refuge (Dams 83, 87, and 96) are also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone-masonry construction to build the spillways for earthfill dams is visually the most characteristic element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available and was often used for public work projects throughout the New Deal era to generate employment. Stone masonry was used to build the low walls that flank the spillway channel for Dam 83, and to build the spillway weir walls for Dams 87, 96, 320, 326, 332,

341, and 357. Of these spillway structures, only those at Dam 83 and 87 retain complete integrity. The spillways at Dams 96, 320, 326, 332, 341, and 357 have all been altered by the addition of concrete caps, buttresses, and/or wing walls. Regardless of these impacts, the original stone masonry work on each of these spillway structures is still visible, and overall they still retain their basic form and function.

None of the earthfill dams on the J. Clark Salyer or Upper Souris wildlife refuges meet the registration requirements for listing on the National Register of Historic Places under Criteria B because none of these eight structures are associated with an individual who contributed significantly to development of the national wildlife refuge system.

PERIOD OF SIGNIFICANCE AND NATIONAL REGISTER BOUNDARIES

The period of significance for each of the dams is the year, or years, in which the structure was built. National Register boundaries for each of the dams is confined to each individual structure, with no surroundings included. National Register guidelines suggest that boundaries be drawn to only encompass the significant resource. A summary of the eligibility criteria, periods of significance, and geographic data for each of the dams is provided below.

Significant Earthfill Dams at the Upper Souris National Wildlife Refuge:

Dam 83

Eligibility Criteria: A and C

Period of Significance: 1935-1936

Acreage: 12 acres

UTM References: zone 14, N. 5370190 m, E. 309000 m

Boundary Description: The boundary for Dam 83 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

Dam 87

Eligibility Criteria: A and C

Period of Significance: 1935-1936

Acreage: 7 acres

UTM References: zone 14, N. 5367260 m, E. 312380 m

Boundary Description: The boundary for Dam 87 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

Dam 96

Eligibility Criteria: A and C

Period of Significance: 1935-1936

Acreage: 7 acres

UTM References: zone 14, N. 536180 m, E. 312380 m

Boundary Description: The boundary for Dam 96 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

Significant Earthfill Dams at the J. Clark Salyer National Wildlife Refuge:

Dam 320

Eligibility Criteria: A and C

Period of Significance: 1935-1936

Acreage: 50 acres

UTM References: not available;

	<u>Latitude:</u>	<u>Longitude:</u>
NE end	48 degrees, 36' 12"	100 degrees, 38' 07"
SW end	48 degrees, 34' 17"	100 degrees, 40' 36"

Boundary Description: The boundary for Dam 320 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

Dam 326

Eligibility Criteria: A and C

Period of Significance: 1935-1936

Acreage: 35 acres

UTM References: not available;

	<u>Latitude:</u>	<u>Longitude:</u>
NE end	48 degrees, 38' 17"	100 degrees, 42' 42"
SW end	48 degrees, 37' 09"	100 degrees, 43' 39"

Boundary Description: The boundary for Dam 326 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

Dam 332

Eligibility Criteria: A and C

Period of Significance: 1935-1936

Acreage: 14 acres

UTM References: not available;

	<u>Latitude:</u>	<u>Longitude:</u>
NE end	48 degrees, 40' 28"	100 degrees, 46' 30"
SW end	48 degrees, 40' 14"	100 degrees, 47' 36"

Boundary Description: The boundary for Dam 332 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

Dam 341

Eligibility Criteria: A and C

Period of Significance: 1935-1936

Acreage: 10 acres

UTM References: not available;

	<u>Latitude:</u>	<u>Longitude:</u>
NE end	48 degrees, 46' 37"	100 degrees, 51' 50"
SW end	48 degrees, 46' 29"	100 degrees, 52' 36"

Boundary Description: The boundary for Dam 341 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

Dam 357

Eligibility Criteria: A and C

Period of Significance: 1937

Acreage: less than 10 acres

UTM References: not available;

	<u>Latitude:</u>	<u>Longitude:</u>
NE end	48 degrees, 58' 59"	100 degrees, 57' 34"
Center apex	48 degrees, 59' 02"	100 degrees, 57' 51"
SW end	48 degrees, 59' 02"	100 degrees, 58' 16"

Boundary Description: The boundary for Dam 357 is confined to the structure itself with no surroundings included.

Boundary Justification: National Register guidelines suggest that boundaries be drawn to only encompass the significant resource.

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APPENDIX A: Scope of Work

SCOPE OF WORK
HISTORICAL ANALYSIS OF DAMS IN THE
J. CLARK SALYER AND UPPER SOURIS NATIONAL WILDLIFE REFUGES
IN NORTH DAKOTA

1.00 INTRODUCTION

1.01 The Contractor will assess the National Register significance of dams in the J. Clark Salyer National Wildlife Refuge and the Upper Souris National Wildlife Refuge on the Souris River in North Dakota.

1.02 This assessment partially fulfills the obligations of the Corps of Engineers (Corps) regarding cultural resources, as set forth in the National Historic Preservation Act of 1966 (Public Law [PL] 89-665), as amended; the National Environmental Policy Act of 1969 (PL 91-190); Executive Order (EO) 11593 for the "Protection and Enhancement of the Cultural Environment" (Federal Register, May 13, 1971); the Archaeological and Historical Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800); and the applicable Corps regulations (ER 1105-2-50).

1.03 The laws listed above establish the importance of Federal leadership, through the various responsible agencies, in locating and preserving cultural resources within project areas. Specific steps to comply with these laws, particularly as directed in PL 93-291 and EO 11593, are being taken by the Corps "... to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance." A part of that responsibility is to locate, inventory, and nominate to the Secretary of the Interior all such sites in the project area that appear to qualify for listing on the National Register of Historic Places.

1.04 EO 11593 and the 1980 amendments to the National Historic Preservation Act further direct Federal agencies "... to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished or substantially altered." In addition, the Corps is directed to administer its policies, plans, and programs so that federally and non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved and maintained for the inspiration and benefit of the people.

1.05 This historical resources evaluation will serve several functions. The report will be a planning tool to aid the Corps

in meeting its obligations to preserve and protect our cultural heritage. It will be a comprehensive, scholarly document that not only fulfills federally mandated legal requirements but also serves as a scientific reference for future professional studies. Thus, the report must be analytical, not just descriptive.

2.00 PROJECT DESCRIPTION

2.01 The authorized Souris River Basin project is a flood control project for urban and rural reaches of the Souris River in North Dakota. The project involves flood control features in both the United States and Saskatchewan, Canada.

2.02 The project requires modifying five dams within the J. Clark Salyer Wildlife Refuge - Dam Numbers 320, 326, 332, 341, and 357 - and three dams within the Upper Souris River National Wildlife Refuge - Dam Numbers 83, 87, and 96.

J. Clark Salyer National Wildlife Refuge Dams:

Dam-No. 320	Sec.s 17, 18, 19	T159N, R78W
	& Sec.s 24 & 25	T159N, R79W
Dam No. 326	Sec.s 34 & 35	T160N, R78W &
	Sec. 3	T159N, R77W
Dam No. 332	N 1/2 Sec. 19	T160N, R78W
Dam No. 341	N 1/2 Sec. 14	T161N, R79W
Dam No. 357	S 1/2 Sec. 31	T164N, R79W

Upper Souris National Wildlife Refuge Dams:

Dam No. 83	Sec. 6	T157N, R84W &
	Sec. 1	T157N, R85W
Dam No. 87	Sec.s 8 & 9	T157N, R84W
Dam No. 96	Sec. 34	T157N, R84W

3.00 DEFINITIONS

3.01 National Register means National Register of Historic Places.

3.02 National Register Significance: "The Secretary of the Interior's standards state three distinct requirements for properties listed in the National Register of Historic Places. First of all, properties must possess significance. Second, the significance must satisfy at least one of the National Register criteria. And finally, significance must be derived from an understanding of historic context."

3.03 Criteria of Significance: is defined in 36 CFR Part 60.4.

3.04 Historic Context: "A historic context is a body of information about historic properties organized by theme, place, and time. It is the organization of information about our

prehistory and history according to the stages of development occurring at various times and places."

4.00 STUDY SPECIFICATIONS

4.01 The Contractor will determine whether the dams listed in point 2.02 merit inclusion on the National Register of Historic Places either as a multiple resource group or individually. The decision for inclusion or exclusion as a group or individually will be based upon a thorough examination of the historic context in which the dams were built, upon the engineering technology used in them, and upon the National Register's Criteria for Evaluation.

4.02 The Contractor will also locate all camps associated with the construction of the dams listed in point 2.02 and will provide an analysis of the National Register significance of the camp or camps located.

4.03 The contractor will submit determinations of eligibility for the National Register of Historic Places for any dams or camp sites found significant based upon studies completed for points 4.01 and 4.02 of this scope of work. The determination of eligibility will follow the format outlined in Bulletin 16 of the National Register of Historic Places.

4.04 The Contractor will obtain Special Use Permits from the Fish and Wildlife manager of the J. Clark Salyer (Robert Howard; 701-768-2548) and Upper Souris Wildlife Refuges (Dean Knauer; 701-468-5467) prior to entry onto Fish and Wildlife lands. The Contractor must examine documents relating to the history of the dams and refuges held at each of the refuge headquarters.

4.05 The Contractor should also contact Jerry Nugent (303-236-8145) and Bill Godby (303-236-5322) of the Fish and Wildlife Regional Office in Denver. Mr. Nugent is the contact person for Fish and Wildlife Office on this project. Mr. Godby is the chief engineer for the regional office and has some of the construction documents for the refuge dams. The Contractor must examine those documents and drawings that pertain to the refuge dams being examined in this study.

4.06 The Contractor will include photographs of each of the dams listed in point 2.02 in the draft and final reports. Minimally, the Contractor will photograph the upstream and downstream sides of each dam, their gates, gate machinery and any special features.

4.07 The Contractor will also submit photographs of any camps associated with the construction of the dams. If any buildings remain, they should be photographed from each side and any

details should receive separate photographs.

5.00 PERFORMANCE SPECIFICATIONS

5.01 The Contractor's work will be subject to the supervision, review, and approval of the Contracting Officer's representative.

5.02 The Contractor will employ a systematic, interdisciplinary approach in conducting the study, using techniques and methods that represent the current state of knowledge for the appropriate disciplines. The Contractor will provide specialized knowledge and skills as needed, including expertise in American history, North Dakota history and engineering history.

5.03 The Contractor will provide all materials and equipment necessary to perform the required services expeditiously.

5.04 A National Register of Historic Places determination of eligibility will be prepared for each dam or group of dams found to merit inclusion on the National Register.

6.00 GENERAL REPORT REQUIREMENTS

6.01 The Contractor will submit the following documents, described in this point and point 7.00: a draft contract report and a final contract report.

6.02 The Contractor's draft and final reports will include the sub-points a-m listed below. The length of each point depends on the level of detail required of the study and the amount of information available. The reports should be as concise as possible, yet provide all the information needed for evaluating and managing the project and for future reference.

a. Title page: The title page will provide the following information: the type of study; the types of cultural resources assessed (historical and architectural); the project name and location (county and State); the date of the report; the Contractor's name; the contract number; the name of the author(s) and/or Principal Investigator; the signature of the Principal Investigator; and the agency for which the report is being prepared.

b. Management summary: This section will provide a concise summary of the study, containing all the information needed for management of the project. This information will include the reason the work was undertaken, who the sponsor was, a brief summary of the scope of work and budget, a summary research findings, the significance of the findings, and the limitations of the study.

c. Table of contents

d. List of figures

e. List of plates

f. Introduction: This section will identify the sponsors (Corps of Engineers), their reason for the study, and present an overview of the study. It will also define the location and boundaries of the study area (using regional and area-specific maps); define the study area within its regional cultural context; reference the scope of work; identify the institution that did the work and the number of people and person-days/hours involved; give the dates when the various phases of the work were completed; and provide a brief outline of the report and an overview of its major goals.

g. Previous historical studies: This section will concisely summarize and evaluate previous historical research in the study area including the researchers, dates, extent, adequacy, and results of past work. This review will be limited to studies that examine the post-1900 history of the area.

h. Theoretical and methodological overview: This section will state the goals of the sponsor and the researcher, the theoretical and methodological orientation of the study, and the research strategies that were applied to achieve the goals.

i. Main Text: This section will present the historical context in which the dams in the J. Clark Salyer and the Upper Souris River National Wild Life Refuges were built. It will minimally include a history of the dams in each refuge. This section will also include a description of the technology used in the construction of each of the dams and a discussion of any unique or significant features that the dams may possess.

j. Evaluation and conclusions: This section will summarize the study's findings. It will explain why the dams are or are not eligible for the National Register. If the dams are eligible, the Contractor will explain why they are eligible individually or as a multiple resource group.

k. Recommendations: This section will recommend whether the dams in either or both of the refuges should be included or excluded from the National Register of Historic Places and why.

l. References: This section will provide bibliographic references for every publication cited in the report. References not cited in the report may be listed in a separate "Additional References" section.

m. Appendix: This section will include the determinations of eligibility for any dams and/or camps found to merit inclusion

in the National Register of Historic Places, the Scope of Work, resumes of project personnel, copies of all correspondence relating to the study, and any other pertinent information referenced in the text. It will also include State site forms for all dams identified during the study.

n. Figures: The location of all of the dams discussed in the text will be shown on a legibly photocopied USGS maps bound into the report.

6.03 The draft contract report will be submitted to the Contracting Officer's representative, who will review it and forward it to other appropriate agencies for review. Comments will be returned to the Contractor, who will make the required revisions and submit the final contract report.

6.04 A cover letter submitted with the final contract report will include the project budget.

6.05 The Contractor will submit to the Contracting Officer's representative the negatives for all photographs that appear in the final report.

7.00 REPORT FORMATS

7.01 Formats for both the draft and final contract reports are as follows:

a. The Contractor will present information in whatever textual, tabular, or graphic forms are most effective for communicating it.

b. The draft and final reports will be divided into easily discernible chapters, with appropriate page separations and headings.

c. The report text will be typed, single-spaced (the draft report should be space-and-one-half or double-spaced), on good quality bond paper, 8.5 inches by 11.0 inches, with 1.5-inch binding and bottom margins and 1-inch top and outer margins, and may be printed on both sides of the paper. All pages will be numbered consecutively, including plates, figures, tables, and appendixes.

d. All illustrations and photographs must be clear, legible, self-explanatory, and of sufficiently high quality to be reproduced easily by standard xerographic equipment, and will have margins as defined above. All maps must be labeled with a caption/description, a north arrow, a scale bar, map size and dates, and map source (e.g., the USGS quad name or published source). It is preferred that original photographs be used rather than xerox prints to insure quality.

8.00 MATERIALS PROVIDED

8.01 The Contracting Officer's representative will furnish the Contractor with access to any publications, records, maps, or photographs that are on file at the St. Paul District headquarters that are appropriate to the study being undertaken.

9.00 SUBMITTALS

9.01 The Contractor will submit reports according to the following schedules:

b. Draft contract report: Seven copies of the draft contract report will be submitted no later than 90 days after the contract is awarded. The draft contract report will be reviewed by the Corps of Engineers, the State Historic Preservation Officer, the National Park Service, and other professionals as selected by the Corps of Engineers. The draft contract report will be submitted according to the report and contract specifications outlined in this scope of work.

c. Final contract report: The original and 15 copies of the final report will be submitted 60 days after the Contractor receives the Corps of Engineers comments on the draft report. The final report will incorporate all the comments made on the draft report.

10.00 CONDITIONS

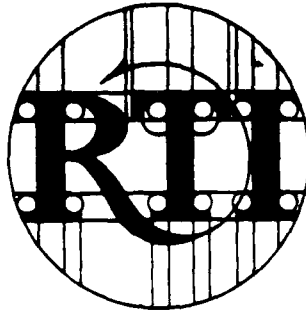
10.01 Failure of the Contractor to fulfill the requirements of this Scope of Work will result in rejection of the Contractor's report and/or termination of the contract.

10.02 Neither the Contractor nor his representative shall release any sketch, photograph, report, or other materials of any nature obtained or prepared under the contract without specific written approval of the Contracting Officer's representative prior to the acceptance of the final report by the Government.

10.03 All materials, documents, collections, notes, forms, maps, etc., that have been produced or acquired in any manner for use in the completion of this contract shall be made available to the Contracting Officer's representative upon request.

10.04 Principal investigators will be responsible for the validity of material presented in their reports. In the event of controversy or court challenge, the principal investigator(s) will be placed under separate contract to testify on behalf of the Government in support of the findings presented in their reports.

APPENDIX B: Resumes of Project Personnel



FREDRIC L. QUIVIK
Architectural Historian
Building Recycling Specialist

SUMMARY OF EXPERIENCE

As coordinator of RTI's division of architecture and historic preservation, Mr. Quivik manages a broad assortment of projects dealing with the assessment and enhancement of the built environment. Since 1976, he has been active as a professional in the field of historic preservation. His experience has encompassed both the fields of architectural history and building rehabilitation design. He combines a thorough background in historical research, cultural resource surveys, and preservation planning with extensive experience in restoration, adaptive use, and energy conservation design.

As architectural historian at RTI, Mr. Quivik offers a wide range of related skills in the field of cultural resources management. He has conducted surveys of rural, urban, and industrial historic sites and districts, prepared National Register nominations, performed determinations of eligibility and impact assessments according to federal requirements, prepared photo-documentation and measured drawings of historic sites, and developed planning documents for the preservation of historic districts. Mr. Quivik is particularly skilled at researching and developing historic contexts within which to assess the significance of cultural resources.

Although he is experienced in recording and evaluating all aspects of the built environment, Mr. Quivik specializes in industrial sites. He has surveyed and assessed sites ranging from bridges and railroad installations to manufacturing, mineral processing and hydropower facilities. Mr. Quivik has extensive knowledge of the role of industrialization in the development of the American West. In addition to private, commercial, and government clients, Mr. Quivik has worked for local community non-profit groups on a number of cultural resource projects.

As building recycling specialist at RTI, Mr. Quivik assists RTI's architect in design projects, most of which involve existing buildings. He has designed the restoration, rehabilitation and energy conservation retrofit of single- and multi-family residences, commercial structures and institutional buildings. Clients include private individuals, private corporations and governmental agencies. Several projects have been certified by the National Park Service for investment tax credits available for the rehabilitation of historic structures.

Mr. Quivik also has taught numerous courses at the college level: historic preservation and engineering graphics at Montana College of Mineral Science and Technology and historic preservation and architectural history at Montana State University.

EMPLOYMENT HISTORY

Building Recycling Specialist/Architectural Historian, Division of Architecture and Historic Preservation, RTI, Butte, MT, 5/82-Present.

Adjunct Assistant Professor, School of Architecture, Montana State University, Bozeman, MT, 1/83-3/83.

Instructor, Historic Preservation, Montana State University, Bozeman, MT, 1/82-3/82.

Building Recycling Specialist, National Center for Appropriate Technology, Butte, MT, 4/77-9/81.

Instructor, Engineering Graphics, Montana College of Mineral Science and Technology, Butte, MT, 1/81-5/81.

Historian, Historic American Engineering Record, U.S. Department of the Interior, Butte, MT, 10/79-4/81.

Instructor, Historic Preservation, Montana College of Mineral Science and Technology, Butte, MT, 9/79-12/79.

Senior Architect, Historic American Engineering Record, U.S. Department of the Interior, Butte, MT, 6/79-9/79.

Architectural Historian, State Historic Preservation Office, Montana State Department of Fish and Game, Helena, MT, 6/76-8/76.

EDUCATION

Master of Science in Historic Preservation, Graduate School of Architecture and Planning, Columbia University, New York City, 1977.

Bachelor of Environmental Design, School of Architecture, University of Minnesota, Minneapolis, MN, 1975.

Bachelor of Arts in Art, St. Olaf College, Northfield, MN, 1971.

PROFESSIONAL AFFILIATIONS

Board of Directors, Butte-Anaconda Historical Park and Railroad Corporation, 1986-Present

Montana Historic Preservation Review Board, Appointed by Governor Schwinden, 10/81; Reappointed 10/85; Elected Chairperson, 12/87

Montana State Capitol Restoration Advisory Panel, Appointed by House Speaker John Vincent, 5/85

Butte Society of Architects

Society for Industrial Archeology; President of Klepetko (Montana Chapter)

Society for Architectural Historians

Society for the History of Technology

National Trust for Historic Preservation

Preservation Action, National Board, 1980-1985

Board of Directors, Butte-Silver Bow Public Archives, 1979-1986

SCHOLARLY PAPERS AND PUBLICATIONS

"Steel Transmission Towers & Energy for Montana's Copper Industry," Historic Landscapes feature in Montana: The Magazine of Western History, Fall 1988, Vol. 38.

"Contribution of Railroads to Montana's Historic Bridge Landscape," presentation at the Montana History Conference, Livingston, MT, 10/88.

"Hydroelectric Developments Along the Great Falls of the Missouri River, 1890-1957," paper given at the 17th Annual Meeting of the Society for Industrial Archeology, Wheeling, WV, 5/88.

Book Review of Song of the Hammer & Steel by Duane Smith, in IA: The Journal of the Society for Industrial Archeology, 1987, Vol. 13, No. 2.

"Historical Differences Between Hardrock Mining and Underground Coal Mining," presentation at the Montana History Conference, Helena, MT, 10/87.

"Industrial Urbanism on the Wheat Frontier: Minot, North Dakota, 1886-1929," paper given at the 15th Annual Meeting of the Society of Industrial Archeology, Cleveland, OH, 6/86.

"The Western Clay Manufacturing Co.," paper given at the 14th Annual Meeting of the Society for Industrial Archeology, Newark, NJ, 5/85.

Fredric L. Quivik, James Masker and Ralph Wittcoff, "Superinsulation Retrofit: An Effective Integration of Community Economic Development and Community Energy Management," presented at the Nebraska Energy Office National Colloquium on Community Energy Management as a Community Economic Development Strategy, Lincoln, NE, 10/84.

"Appropriate Technologies and Historic Preservation," paper given at the International Conference on the Conservation of Industrial Heritage (TICCIH), Lowell, MA, 6/84.

"The Anaconda Company Smelters at Great Falls and Anaconda," in The Speculator: The Journal of Butte and Southwest Montana History, Summer 1984, Vol. 1, No. 2, based on a paper given at the Annual Meeting of the Society for Industrial Archeology, St. Paul, MN, 5/83.

"Montana's Minneapolis Bridge Builders," in IA, The Journal of the Society for Industrial Archeology, 1984, Vol. 10, No. 1, based on a paper given at the Annual Meeting of the Society for Industrial Archeology, St. Paul, MN, 5/83.

"Maintenance and Stabilization of Historic Bridges," paper given at the Annual Meeting of the Association for Preservation Technology, Baniff, Alberta, 10/82.

"The Great Falls Smelter: Some Reflections on Its Significance," paper given at the Montana State History Conference, Great Falls, MT, 10/82.

Co-director, with Brian Shovers, of "Butte: The Urban Frontier," a three-day history conference sponsored by the Butte Historical Society with major funding by the Montana Committee for the Humanities, Butte, MT, 9/82.

"Superinsulation vs. Passive Solar Energy in Historic Buildings," paper given at the Annual Meeting of the Association for Preservation Technology, Washington, D.C., 10/81.

"A Comparison Between Passive Solar and Superinsulated Retrofits," paper given at the Sixth National Passive Solar Conference, Portland, OR, 9/81. Published in the Conference Proceedings, AS/ISES, 1981.

"Retrofitting with Passive Solar," paper published in New Energy From Old Buildings, The Preservation Press, Washington, D.C., 1981, and given at the Smithsonian Institution, Washington, D.C., during National Historic Preservation Week, 5/80.

"Passive Solar Retrofit of Historic Structures," paper given at the Annual Meeting of the Association for Preservation Technology, Denver, CO, 9/79.

CONTRACT PUBLICATIONS AND PRESENTATIONS

"Determination of Eligibility for Seven Bureau of Reclamation Dams in Oregon, Idaho, and Wyoming," with Jeffrey A. Hess, work in progress, contract to Pacific Northwest Region, Bureau of Reclamation.

"Blaine Spring Creek Bridge, HAER No. MT-63" and "Upper Madison Bridge, HAER No. MT-64," with Lon Johnson, Historic American Engineering Record narrative history and large format photographic documentation, sub-contract to Ethos Consulting for Montana Highway Department, June 1989.

"Crow Agency Historic Complex, HABS No. MT-79," with Mary McCormick, Historic American Buildings Survey narrative history and large format archival photographic documentation of five buildings at Crow Agency, contract to the Bureau of Indian Affairs, June 1989.

"Historic Bridges in South Dakota," statewide survey & determination of eligibility, with Mary McCormick, work in progress, contract to South Dakota Department of Transportation.

"Determination of Eligibility for Historic Resources at Camp Grafton, North Dakota," work in progress, contract to Omaha District, US Army Corps of Engineers.

"Rocky Boy's Agency Flour Mill, HABS No. MT-76," Historic American Buildings Survey narrative history & photographic documentation, 10/88, contract to Billings Area Office, Bureau of Indian Affairs.

"Reconnaissance Surveys of Crosby and Velva, North Dakota," with Dale Martin, 9/88, contract to State Historical Society of North Dakota.

"Determination of Eligibility of Five C&NW Bridges and a Freight Depot at Sioux Falls, South Dakota," 6/88, contract to Chicago and Northwestern Railroad.

"Historic Iron and Steel Bridges in Minnesota, 1873-1940," statewide survey and development of historical context for the Minnesota Historical Society, with Dale Martin, subcontract to Jeffrey Hess, 6/88.

"Determination of Eligibility of Four MPC Hydroelectric Generating Facilities Near Great Falls, Montana," with Mary McCormick, 5/88, contract to the Montana Power Company.

"Hardin City Water Works, HABS No. MT-71," Historic American Buildings Survey Narrative Architectural History, 9/87, contract to City of Hardin.

"Determination of Eligibility of Buildings at Six BIA Agencies in Montana," with Mark Fiege, 9/87, contract to Billings Area Office, Bureau of Indian Affairs.

"Fort Peck Townsite, HABS No. MT-70," Historic American Buildings Survey Narrative Architectural History, 5/87, contract to Omaha District Corps of Engineers.

"Determination of Eligibility of the Madison River Dam and Power Plant," with Mark Fiege, 4/87, contract to Montana Power Company.

"Historic Resources of North Side Fargo: Inventory and Assessment," with Mark Fiege and Jack Crowley, 8/86, under a contract to the Fargo Historical Society.

"Final Report on the Intensive and Reconnaissance Surveys for Minot, North Dakota," with Mary McCormick, 12/85, under a contract to the State Historical Society of North Dakota.

"Flint Creek Powerhouse and Dam: A Determination of Eligibility for the National Register of Historic Places," with Mark Fiege, 12/85, under a contract to the Montana Power Company.

"Preservation of a Neighborhood: A Neighborhood Preservation Plan for Central Butte," with Bruce von Alten and Jim E. Richard, 11/85, under a contract to the Butte Community Union.

"Industrial Heritage of Butte and Anaconda: An Analysis of the Historical Significance of the Surviving Physical Features of the Anaconda Copper Mining Company," with Mark Fiege and Brian Shovers, 9/85, under a contract to the Butte Historical Society.

"Butte-Anaconda Historical Park System Master Plan," with Dennis Glick and Mark Fiege, 9/85, under a contract to the Butte Historical Society.

"The Western Clay Manufacturing Co.: An Historical Analysis of Its Plant and Its Development," 2/85, under contract to the Archie Bray Foundation.

"Milltown Dam: A Determination of Eligibility for the National Register of Historic Places," 12/84, under contract to the Montana Power Company.

"Development of the Built Environment in the Original Townsite of Hardin, Montana," 9/84, under contract to the Big Horn County Historical Museum.

Historic Bridges in Montana, U.S. Department of the Interior, National Park Service, Historic American Engineering Record, Washington, D.C., 1982.

"Cultural Resource Inventory and Evaluation Project, Homestake Mining Company Properties, Jardine, Montana," with Peter Steere and Paul Anderson, 4/82, under a contract to Homestake Mining Company.

NATIONAL REGISTER NOMINATIONS

"Historic Metal Bridges in Minnesota," with Dale Martin, 6/88.

"Antler State Bank," Antler, North Dakota, 10/87.

"Historic Resources of Minot, North Dakota," 1986, with Mary McCormick and Mark Fiege.

"Headframes and Mineyards of Butte," 1985, with Mark Fiege and Brian Shovers.

"The Butte, Anaconda and Pacific Railway Historic District," 1985, with Mark Fiege.

"The Foundry Department of the Anaconda Copper Mining Company Historic District," 1985, with Mark Fiege.

"Old Works Smelter Historic District," 1985.

"Western Clay Manufacturing Company Historic District," 1985.

"Historic Resources of Hardin, Montana," 1984.

"Silver Bow Brewery Malt House," 1982.

"Silver Bow County Poor Farm," 1979.

And numerous others during the summer of 1976 while employed by the Montana State Historic Preservation Office, including:

"Paris Gibson High School," (Great Falls).

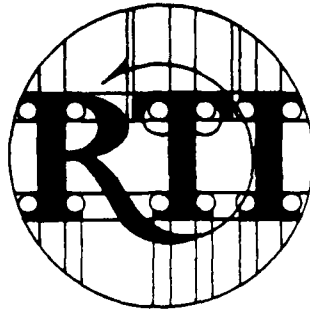
"The Castle," (White Sulphur Springs).

"Charles Clark House," (Butte).

"Missoula County Courthouse," (Missoula).

"Kleffner Ranch," (East Helena).

"Orr Mansion," (Dillon).



MARY E. McCORMICK
-Public Historian-
-Archeologist-

SUMMARY OF EXPERIENCE

Since 1979, Mary McCormick has built a varied professional career encompassing both the fields of archeology and public history. Her expertise in these endeavors includes archeological laboratory and fieldwork, historic preservation, archival management, historic site interpretation, and oral history interviews.

At the Montana Power Company, Ms. McCormick assisted in a cultural resource management program designed to facilitate project permitting in compliance with federal and state regulations. Her work involved historic architectural and archeological inventories and consisted of site identification and field recordation, significance analysis, projected related impact assessments, and all phases of report preparation, including research, writing and preparation of maps, charts and other graphics. Specific projects included an inventory of hydroelectric plants along the Great Falls of the Missouri, a survey of historic homesteads in the Judith Basin, and a literature search of cultural resources along Flathead Lake. Inventory work was also conducted in the Madison Valley area and Montana's north-central region. Ms. McCormick's other responsibilities included review and comment of reports prepared by private contractors and evaluation of management options for the relicensing of hydroelectric facilities. Ms. McCormick also devised text and graphics for interpretive signs for Montana Power recreation areas.

Prior to her employment at the Montana Power Company, Ms. McCormick worked for RTI, and directed the inventory of buildings and structures in Minot, North Dakota, to determine potential historic districts and individual properties eligible for the National Register of Historic Places. Drawing on her research skills and through knowledge of architectural history, she surveyed over 1,000 properties, determined the significance of over 400 properties, and conducted an in-depth analysis of the history of Minot.

While a graduate student at Colorado State University, Ms. McCormick participated in a variety of public history activities. In preparing a slide/ tape program outlining the history of the Colorado Association of Soil Conservation Districts, she arranged and described the organization's archival collection and conducted 25 oral history interviews. Through the Colorado State Historical Society, she conducted interpretive tours of an early silver mine providing visitors with an understanding of mining and its

contribution to Colorado's development. And as an employee of the City of Fort Collins, she carried out an inventory of buildings within an historic city block and completed a nomination to the National Register of Historic Places.

For nearly five years after receiving her B.A., Ms. McCormick was Laboratory/Field Supervisor for the Division of Archeological Research, University of Nebraska-Lincoln. During this time, she worked on five major archeological surveys and developed skills in site identification, mapping and testing as well as faunal, lithic and ceramic analysis.

EMPLOYMENT HISTORY

Cultural Resource Specialist, Montana Power Company, Butte, MT, May 1986 to May 1988. Conducted cultural resource inventories and project related impact assessments in compliance with federal and state regulations. Reviewed reports prepared for Montana Power by private contractors. Evaluated management options for relicensing hydroelectric plants. Helped devise interpretive signs for company recreational areas.

Public Historian, Historic Preservation Section, RTI, Butte, MT, 6/85 to 5/86. Inventoried and surveyed historic architectural and industrial structures and sites and prepared narrative overviews which create context for assessing historical significance.

Graduate Teaching Assistant, Colorado State University, Fort Collins, CO, 8/84 to 5/85. Conducted review sessions, prepared and graded exams, served as liaison between professor and students, Western Civilization.

Researcher, City of Fort Collins, CO, 9/84 to 12/84. Researched historical and architectural significance of Fort Collins historic block. Prepared National Register nomination form and co-authored "Survey of the 400 Block of Mathews Street, with particular attention to 409 Mathews--the Hammett House."

Graduate Research Assistant, Colorado State University, Fort Collins, CO, 11/83 to 11/84. Researcher and oral historian for the Colorado Soil Conservation History Project. Involved extensive work in the Colorado Agricultural Archives, Colorado State University including: inventorying, developing series descriptions and devising in-house finding aids for documentary and photographic records. Conducted 12 oral history interviews.

Preservation Intern, Georgetown Loop Historic Mining and Railroad Park, Colorado Historical Society, Georgetown, CO, Summer 1984. Conducted interpretive tours of an early Colorado silver mine, incorporating lectures and artifacts to teach mining history and methods.

Archival Intern, University Archives, Colorado State University Libraries, Fort Collins, CO, Spring 1984. Updated in-house finding aids to archival collections.

Library Assistant, Northwestern Law Library, Northwestern University, Chicago, IL, 11/82 to 4/83. Assisted in inter-library conversion from manual to computer-based operation.

Laboratory and Field Supervisor, Department of Anthropology/Division of Archeological Research, University of Nebraska-Lincoln, 5/78 to 8/82. Coordinated staff in field and laboratory activities including: identifying, mapping and excavating archeological sites; processing and analysis of artifacts; and tabulation of statistical data. Contributed to technical publications.

EDUCATION

Master of Arts, Historic Preservation and Archival Management, Colorado State University, Fort Collins, CO, 5/85.

Bachelor of Arts, History and Anthropology, University of Nebraska, Lincoln, NE, 1978.

Dana College, Blair, NE, 1974-1976.

PUBLICATIONS AND CREATIVE WORKS

McCormick, Mary E. and Fredric L. Quivik, "Crow Agency Historic Complex, HABS No. MT-79," Historic American Buildings Survey narrative history for five buildings at Crow Agency, contract to the Bureau of Indian Affairs, June 1989.

McCormick, Mary E. and Fredric L. Quivik, A Determination of Eligibility for Hydroelectric Generating Plants Along the Great Falls of the Missouri: The Black Eagle Falls, Rainbow Falls, Morony and Cochrane Facilities, Draft Report. Butte: The Montana Power Company, 1988.

McCormick, Mary E., Field Investigation at Site 24MA963: Ennis to Big Sky 161 kV Transmission Line. Butte: The Montana Power Company, 1988.

McCormick, Mary E. and Elvin Fitzhugh, "Milltown Dam," "Milltown Turbines," and "The Hellgate Canyon." Draft interpretive signs prepared for The Montana Power Company's proposed Milltown recreation area, 1988.

McCormick, Mary E. and Elaine Howard, "Cultural Resource Literature Search: Flathead Lake," confidential report in Cultural Resource Management Plan, Kerr Project by Elaine Howard. Butte: The Montana Power Company, 1987.

McCormick, Mary E. and Elvin Fitzhugh, "Native American Food Sources," "Flathead Reservation," and "Kerr Dam." Interpretive signs prepared for The Montana Power Company's Kerr Dam recreation area, 1987.

McCormick, Mary E. and Joan L. Brownell, Cultural Resource Inventory of Sheet Butte: Proposed Microwave Communications Project. Butte: The Montana Power Company, 1987.

McCormick, Mary E., Cultural Resource Inventory: Stanford to Geraldine 50 kV Relocation. Bureau of Land Management. Butte: The Montana Power Company, 1987.

McCormick, Mary E., Cultural Resource Survey: The Montana Power Company Drop Structure, Gallatin River. Butte: The Montana Power Company, 1987.

McCormick, Mary E., Preliminary Environmental Assessment of Management Options: Rainbow Dam. Butte: The Montana Power Company, 1986.

McCormick, Mary E. and Elaine Howard, Impact Assessment: Hauser Dam Channel - Clearing Project. Butte: The Montana Power Company, 1986.

McCormick, Mary E., Mart T. Fiege and Fredric L. Quivik, Historic Resources of Minot, North Dakota 1986. Nomination form for the National Register of Historic Places. Butte: RTI, 1986.

McCormick, Mary E. and Fredric L. Quivik, Final Report on the Intensive and Reconnaissance Surveys for Minot, North Dakota. Butte: RTI, 1985.

McCormick, Mary E. and Sara Briggs, "Uniting to Save the Soil: The Colorado Association of Soil Conservation Districts and Its Forty-Year Legacy," a slide/tape program. Funded by a grant from the Colorado Endowment for the Humanities, 1985.

McCormick, Mary E., Carl Falk and Robert Pepperl, Native American Archeology: Norden Unit, Nebraska. Lincoln: Dept. of Anthropology, University of Nebraska, 1982.

McCormick, Mary E. et al., "Inventory and Assessment of Lithic and Other Cultural Materials Recovered During the 1979 Investigation: Lake Oahe East Shore Survey, South Dakota," in A Cultural Resource Survey of Lake Oahe by Carl Falk and Robert Pepperl. Lincoln: Dept. of Anthropology, University of Nebraska, 1982.

PROFESSIONAL MEMBERSHIPS

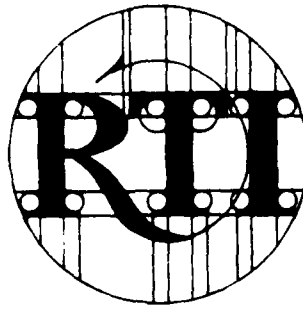
Butte-Silver Bow Archives Board of Directors

Walkerville Historic Preservation Commission

Montana Chapter of the Society of Industrial Archeology

Montana Archeological Society

APPENDIX C: Project Correspondence



January 9, 1989

Dawn Linder
St. Paul District, Corps of Engineers
1421 U.S. Post Office & Custom House
St. Paul, MN 55101

Dear Ms. Linder:

Enclosed please find our quotation of \$9,252.00 for the determination of eligibility of specified dams and CCC camps on the Upper Souris and J. Clark Salyer Wildlife Refuges in North Dakota. Also enclosed please find resumes for myself and Mary McCormick and a resume for our firm.

Our quote is for all costs associated with the work specified in your scope of work including field survey, field research, research at the Fish & Wildlife Service in Denver, analysis of data, preparation of North Dakota Cultural Resource Inventory Site Forms, and preparation of a final report meeting the specifications in the National Register's "Bulletin 16." The report will contain an historic context which will allow us to evaluate the dams as individual structures and as a multiple property grouping. The report will be submitted, both in draft and in final forms, according to the format specified by the Corps.

You will note by our resumes that we have evaluated numerous dams, including their control mechanisms. We have also evaluated numerous sites and communities in North Dakota, many in the area around the refuges, and we have evaluated resources associated with the 1930s and the New Deal, so we are familiar with those historic contexts. Our survey work over the past two years has been organized to meet the specifications in "Bulletin 16," even though that was not required until this past autumn.

If you have any questions concerning our quote, please do not hesitate to call. I look forward to hearing from you.

Sincerely,

Fredric L. Quivik

Fredric L. Quivik
Architectural Historian

REQUEST FOR QUOTATIONS (THIS IS NOT AN ORDER)

The Notice of Small Business-Small Purchase Set-Aside on the reverse of this form

PAGE OF PAGES

☒ is ☐ is not applicable.

1. REQUEST NO. DACW37-89-Q- 0031 2. DATE ISSUED 27 DEC 88 3. REQUISITION/PURCHASE REQUEST NO. PDER-89-524 4. CERT. FOR NAT. DEF. UNDER BCDA REG. 2 AND/OR C.M.S. REG. 1 RATING

5A. ISSUED BY DEPARTMENT OF THE ARMY

ST. PAUL DISTRICT, CORPS OF ENGINEERS
1421 U.S. Post Office & Custom House
St. Paul, Minnesota 55101 ATTN:CT-P

6. DELIVER BY (Date)

AS SPECIFIED

7. DELIVERY

5B. FOR INFORMATION CALL: (Name and telephone no.) (No collect calls)

DAWN LINDER 612-220-0407

☒ FOB DESTINATION ☐ OTHER (See Schedule)

8. TO. NAME AND ADDRESS, INCLUDING ZIP CODE

FREDRICK L. QUIVIK
RENEWABLE TECHNOLOGIES
P.O. BOX 4113
BUTTE, MONTANA 59702

9. DESTINATION (Consignee and address, including ZIP Code)

CORPS OF ENGINEERS
1421 U.S. P.O. & CUSTOM HOUSE
ST. PAUL, MN 55101-1479

10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE ON OR BEFORE CLOSE OF BUSINESS (Date)

10 JAN 88

11. BUSINESS CLASSIFICATION (Check appropriate boxes)

☒ SMALL ☐ OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

IMPORTANT: This is a request for information, and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or services. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotation must be completed by the quoter.

12. SCHEDULE (Include applicable Federal, State and local taxes)

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
1.	National Register of Historic Places Significance evaluation: J. Clark Salyer and Upper Souris Wildlife Refuges as in accordance with attached Scope of Work. The minimum wages to be paid on this project, as determined by the Secretary of Labor to be prevailing for the corresponding class of workers employed on projects of a character similar to the contract work in the pertinent locality, will be added by modification when received from the Department of Labor.	1	Job	\$9,252.00	\$9,252.00
Please advise earliest date of delivery <u>Draft report: April 10, 1989</u>					

13. DISCOUNT FOR PROMPT PAYMENT

10 CALENDAR DAYS 20 CALENDAR DAYS 30 CALENDAR DAYS CALENDAR DAYS
% % % %

NOTE: Reverse must also be completed by the quoter.

14. NAME AND ADDRESS OF QUOTER (Street, city, country, State and ZIP Code)

Renewable Technologies, Inc
P.O. Box 4113
Butte, MT 59702

15. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION

Fredrick L. Quivik

16. DATE OF QUOTATION

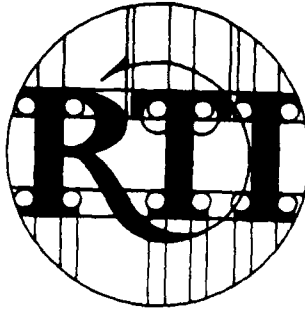
Jan. 9, 1989

17. NAME AND TITLE OF SIGNER (Type or print)

Fredrick L. Quivik
Vice President

18. TELEPHONE NO. (Include area code)

406-782-2386



Mr. S.W. Schmidt
Department of the Army
St. Paul District,
Corps of Engineers
1421 U.S.P.O. & Custom House
St. Paul, MN 55101

RE: Contract DAC37-89-M-0443
National Register of Historic Places
Significance Evaluation of the
J. Clark Salyer and Upper Souris
Wildlife Refuges-Dams and CCC Camps

April 24, 1989

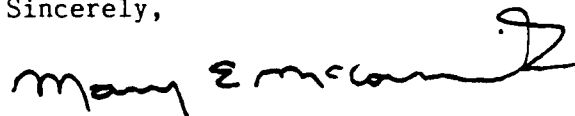
Dear Mr. Schmidt,

Enclosed is a copy of an invoice submitted to the Corps by Renewable Technologies, Inc. (RTI) of Butte, Montana for work completed to date on the above referenced project. The invoice amount represents 25% of the total contract amount for this project and has been submitted following completion of all fieldwork.

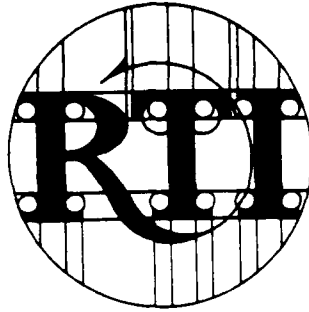
Project fieldwork was conducted by Fred Quivik and myself from the 16th to the 21st of April. During this period we field recorded the five dam structures and the remains of the CCC Camp at the J. Clark Salyer Wildlife Refuge, and the three dam structures and the remains of the CCC Camp at the Upper Souris Wildlife Refuge. Historical research of these properties was also conducted and included records on file at the each of the respective refuge headquarters, the Minot Public Library, and the North Dakota State Historical Society Library and Archives, and the North Dakota State Preservation Office. Fred also had an opportunity to do quite a bit of research on the project at the National Archives at Washington, D.C. Lots of useful information from both primary and secondary sources has been uncovered about the development of the refuges, including construction of the dams as well as the role played by the CCC. In short we have gathered sufficient information to evaluate the integrity of the refuges's dams and CCC camps, to place these properties into historical context, and to fully assess their significance to the National Register.

If you have any questions about the invoice or the work we've completed on the project to date, please contact Fred or me. Our new phone listing is (406) 782-0494.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mary E. McCormick". The signature is written in dark ink and is positioned above the printed name.

Mary E. McCormick



Mr. John Anfinson
PD-ER
St. Paul District, C of E
1421 U.S.P.O. & Custom House
St. Paul, MN 55101

May 3, 1989

Dear John:

Pursuant our telephone conversation today, I am submitting this letter as a "preliminary report" as to the potential eligibility to the National Register of Historic Places for the five dam structures and the CCC camp remains at the Upper Souris Wildlife Refuge; and for the three dam structures and CCC camp remains at the J. Clark Salyer Wildlife Refuge. Please keep in mind that these assessments are only tentative and are based solely on a preliminary analysis of field data and research materials gathered for this project. As I stated in my April 24th letter to Mr. S.W. Schmidt, all fieldwork and historical research for this project was completed by Fred Quivik and myself from April 16-21. At this time we visited both of the refuges, where we made an on-site inspection of all eight dams noting in detail their structural components, current conditions, and any alteration; as well as an on-site inspection of the two CCC camps where we conducted a surface survey to located all associated remains which were plotted on a sketch map and described. Each of the dams and both of the CCC camp sites were also photographed. This trip also included historical research at the Upper Souris and J. Clark Salyer Wildlife Refuge headquarters, the Minot Public Library, and the North Dakota Historical Society in Bismark.

I have formatted this letter to include a brief historical background on the development of the refuges, and a preliminary integrity assessment and significance evaluation for the dams and CCC camps. Once again please keep in mind that these are only tentative assessments and that our final report will present a much more detailed and complete analysis of our findings, including a more comprehensive historical overview and physical description of each of the resources.

HISTORICAL BACKGROUND

Development of both the Upper Souris and J. Clark Salyer Wildlife Refuges was undertaken by the Bureau of Biological Survey, forerunner agency to the U.S. Fish and Wildlife Services, during the mid-1930s and early 1940s. The purpose of these developments was to restore marshlands along the Souris River

which had served as valuable migratory bird habitat until the 1910s when they were drained for agricultural use. Severe drought in the 1930s, which resulted in the "dust bowl," further compounded habitat loss and as a result many migratory bird species, in particular waterfowl, verged on extinction. Restoration of the Souris River marshes was considered as one of the key points in saving the nation's migratory bird populations and creation of a refuge system here was the largest such undertaking carried out by the Biological Survey at this time. The Souris River refuge system, especially the J. Clark Salyer Refuge, is considered by many to be the national "gem" in the waterfowl refuge system.

Project development entailed construction of a large earthen dam to help regulate the river flow, especially during the spring run off. Downstream from the large dam a series of seven smaller dams were established to create a series of small ponds or marshes. The large dam, which impounds 10,000 acre lake known as Lake Darling, and two of the smaller dams were built along the river section encompassed by the Upper Souris Refuge while the remaining five dams, located about 100 miles downstream, were built along the 75 miles of river included within the J. Clark Salyer Refuge. Department of Agriculture Engineers designed all eight of the dam structures. The three dams at the Upper Souris Refuge were built by the Hallet Construction Company of Crosby, Minnesota while the Meggery Brothers of Bismark built the Salyer Refuge dams.

The manpower necessary to carry out the enormous program to restore the refuge lands to their natural condition primarily came from Civilian Conservation Corps or the "CCC". The CCC was one of several New Deal relief programs enacted by the Roosevelt Administration in 1933 and was designed to provide emergency work relief to young men between the ages of 18 to 25. A CCC camp was established at each of the Souris River Refuges in 1935-- "Camp Maurek" at the Upper Souris and "Camp Ding" at the Salyer. Each camp consisted of barracks, mess hall, bath and latrine, various workshops, etc. Activities conducted by the CCC at each of the refuges included building artificial bird nests and fish shelter; clearing trees and brush from lands to be inundated; removal of farm buildings and fences lines from the refuge grounds; planting literally thousands of new trees and scrubs; and planting native seeds in reestablished marshes. The CCC camps remained active until the early 1940s when the entire CCC program ended due to the onset of World War II.

PRELIMINARY INTEGRITY ASSESSMENT AND SIGNIFICANCE EVALUATION

Refuge Dams

The largest of the dam at the Upper Souris Refuge is structure 83 which impounds Lake Darling. This dam is an earthfilled embankment, approximately 3300 feet in length. Outlet works located near the right abutment were altered in the 1960s with new steel control gates and in the early 1970s the upstream face of the dam was refaced with fractured rock. Despite these alterations, the dam retains overall integrity of location, design, setting, workmanship, feeling and associations. The two smaller earthen dams at the Upper Souris Refuge (nos. 87 and 96) retain excellent integrity in all aspects.

One of the five dams at the Salyer refuge, structure no. 357 also retains excellent integrity in all aspects. The other four structures at Salyer (nos. 320, 326, 332, and 341) have each been slightly impacted by the addition of concrete buttresses against the rockwalls of each of their spillways. These alterations, however, have not compromised the overall integrity of the structures.

All three of the Upper Souris Refuge dams as well as all five of the J. Clark Salyer Refuge dams appear to be eligible to the National Register under Criterion A for their association with development of the National Wildlife Refuge system. Construction of these dams was integral to restoration of valuable marshland habitat which in turn played a significant role in reestablishment of the nation's migratory bird populations. Construction of the dams also did much to stimulate the local economy during the Great Depression, a time of national crisis. It is suggested, however, that both the Upper Souris Refuge and the Salyer Refuge are probably eligible National Register listing as rural historic landscapes (see National Register Bulletin No. 30) and the dams at each refuge could be best understood as contributing components to these landscapes. A complete and formal determination of eligible for rural historic landscapes, however, lies beyond the scope of this project.

CCC Camps

The CCC camp, "Camp Maurek," at the Upper Souris refuge has been virtually destroyed. In 1942 most of the camp buildings were dismantled, and the lumber shipped out for use in Alaska. Three of the camp buildings, including a large machine shop, were left standing until the early 1980s when they were also torn down. All the building foundation were also broke up and buried in a common pit and the grounds were cleaned of all other debris. Virtually nothing remains at the camp site except for stones on a hillside reading "Camp Maurek." Therefore the camp has lost all integrity and is not eligible to the National Register.

Except for a single-room concrete building (which appears to have originally been part of a larger building) and a multi-tiered, fountain, there are no standing structures intact at "Camp Ding." Foundation remains for at least ten other buildings were found at the site as well as a sparse scattering of artifacts including parts of stoves which were used for heat at the camp. Camp Ding was also abandoned in the early 1940s but most of its buildings were left standing until the 1960s. The camp has lost its architectural integrity and the ability to recall its historic association. Furthermore, it does not appear to have the ability to yield additional information important to history--especially since there is an abundant historic record which documents the arrangement, function and social aspects of the CCC camps. Therefore it appears that this camp is also not eligible to the National Register.

I hope this provides you with enough information about our work on this project to date. If you have any further questions or information needs please contact Fred, he will be in our offices most of next week.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mary E. McCormick". The signature is fluid and extends to the right with a long, sweeping tail.

Mary E. McCormick



DEPARTMENT OF THE ARMY

ST. PAUL DISTRICT, CORPS OF ENGINEERS
1421 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

REPLY TO
ATTENTION OF

Planning Division
Environmental Resources Branch

Fredric L. Quivik
Renewable Technologies, Inc.
511 Metals Bank
Butte, Montana 59701

Dear Mr. Quivik:

Overall, your draft report "A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties along the Souris River in North Dakota . . .," provides an excellent overview of the J. Clark Salyer and Upper Souris National Wildlife Refuges. Your determination of eligibility is also well done. We do, however, have a number of minor comments that should be addressed before you submit your final report.

Management Summary

page i and page 1: "The St. Paul District has received authorization" to ...

page i: delete one 0 from \$9,252.000.

There are numerous typos and missing words throughout the text; these need to be corrected. For example, on page 1, next to last sentence: "... which were associated with their construction." Page 3, "The general study area ... of the J. Clark Salyer National Wildlife Refuge" Page 11, paragraph 2, "Historical investigation for the inventory were was conducted" Most pages have some type of spelling or grammatical error and generally more than one.

Page 19: delete a zero from 58,7000.

Page 40: "CCC camps do **not** meet eligible requirements ..."?

Page 43, 2nd paragraph, last sentence: "**Clay** puddling around ..."?

Page 118: Explain your reasoning for a National Historic Landscape designation a little more thoroughly.

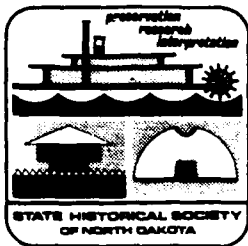
Pages 126 - 129: The Jam listed in the "Boundary Description" is incorrect in every case.

We concur with your conclusions and recommendations and are pursuing the eligibility issue with the North Dakota State Historic Preservation Officer. With significant editing, the report will fulfill the requirements of the scope of work and will be a significant contribution to the history of the Fish and Wildlife Service, North Dakota, and the country.

If you have any questions, please contact John Anfinson at 612-220-0260.

Sincerely,

David Berwick
Chief, Environmental Resources Branch



State Historical Society

of north dakota (STATE HISTORICAL BOARD)

NORTH DAKOTA HERITAGE CENTER, BISMARCK, N.D. 58505
TELEPHONE 701-224-2666

December 12, 1989

Fred Quivik
Renewable Technologies, Inc.
511 Metals Bank
Butte, MT 59701

Dear Mr. Quivik:

We have processed your request for Smithsonian Institution Trinomial System site number(s). You will find a list of your field numbers and the corresponding assigned site numbers listed below. If we encountered any problems in processing your site forms, additional pages will be attached. The attachments will specify problem areas by a check in column one under the heading "Errors or Omissions." If additional information is needed by our office, this will be indicated by a check in column two under the heading "Request for Info."

If you have any questions, please feel free to contact me. My telephone number is (701)224-2672.

Field Number

SITS Site Number

RTI89USR01	32WD60
RTI89USR02	32WD61
RTI89USR03	32WD62
RTI89JCS01	32MH48
RTI89JCS02	32MH49
RTI89JCS03	32BU6
RTI89JCS04	32BU7
RTI89JCS05	32BU8
RTI89JCS06	32BU9 ✓

Sincerely,

Fern Swenson
Research Archeologist

APPENDIX D: North Dakota Site Forms

Note: Site forms as reproduced in this appendix do not include photo pages.
For photos of the individual sites, please refer to the main body of
the report.

NUCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 W.D. 0.060
State County Site Number

Field Code R.T.1.8.9.U.S.R.0.1 Site Name UPPER SURVIVS DAM 8.3
Field Code _____ Site Name _____

Map Quad _____ C.210.101 N.E.
Map Quad _____

LTL <u>0</u>	Twp <u>15.7</u>	R <u>84.W</u>	Sec <u>06</u>	QQQ <u>1</u>	QQ <u>8</u>	Q <u>8</u>
LTL <u>0</u>	Twp <u>15.7</u>	R <u>85.W</u>	Sec <u>01</u>	QQQ <u>1</u>	QQ <u>1</u>	Q <u>5</u>
LTL <u>1</u>	Twp <u>1</u>	R <u>1</u>	Sec <u>1</u>	QQQ <u>1</u>	QQ <u>1</u>	Q <u>1</u>
LTL <u>1</u>	Twp <u>1</u>	R <u>1</u>	Sec <u>1</u>	QQQ <u>1</u>	QQ <u>1</u>	Q <u>1</u>
LTL <u>1</u>	Twp <u>1</u>	R <u>1</u>	Sec <u>1</u>	QQQ <u>1</u>	QQ <u>1</u>	Q <u>1</u>
LTL <u>1</u>	Twp <u>1</u>	R <u>1</u>	Sec <u>1</u>	QQQ <u>1</u>	QQ <u>1</u>	Q <u>1</u>

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

City _____

Street # _____

Street # _____

Street Name _____

Street Name _____

of Features 0.1

FEATURE DATA

0.1 Feature #
1936 Const Date
_____ Feature Date

1.3 Feature Type
0.6 Context

7 Condition
1 Significance
9 Plan Shape

PORCH

BUILDING MATERIALS

_____ Original
_____ Addition/Altered
_____ Removed/None

0.8 Structure System
_____ Primary Exterior Finish
_____ Secondary Exterior Finish

_____ Main Entrance

_____ Ethnic
_____ Style
0.4 17.8.9 Fieldwork Date

1 Builder
_____ Engineer
_____ Designer Architect

_____ LINEAR SHAPE Other Information

_____ Soil Association	_____ Ecozone	_____ Area Signf	_____ MS Number
_____ Soil Association	_____ Ecozone	_____ Area Signf	_____ MS Number
_____ CR Type	_____ Verified Site	_____ Non-Site	_____ E C F _____ T F
_____ State Registry	_____ National Register		

Coder MEM/BTI

Date Coded 07-11-89

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89USR01

SITS Number 32WD

Feature No. 01

Name in Name Block Upper Souris Dam 83

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<input type="checkbox"/> n/a	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<input type="checkbox"/> n/a	<input type="checkbox"/> Other	<input type="checkbox"/> <u>1</u> Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<input type="checkbox"/> n/a		<input type="checkbox"/> n/a	<input type="checkbox"/> <u>newspapers</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<input type="checkbox"/> n/a				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 83, or Lake Darling Dam, is the farthest upstream of the dams at the Upper Souris refuge and impounds the Souris River to form Lake Darling Reservoir which primarily serves to maintain water distribution to restored wildlife habitat situated immediately downstream within the Upper Souris refuge as well as at the J. Clark Salyer Refuge, located about 110 miles (240 river miles) downstream.

Dam 83, is a zoned earthfill embankment with a service spillway, an emergency spillway, and outlet works. The dam basically lies along an east/west axis and is 39 feet high and about 3,300 feet long. The crest of the dam is 39 feet wide and carries a paved county highway its entire length. Construction of the dam began in 1935 with removal of the top 18" of soil from an area covering the length of the dam site and averaging about 225 feet in width. Then a cutoff trench was excavated under and along the length of the (see continuation form, pages 4-5, and 7)

SIGNIFICANCE

☒ SIGNIFICANT

☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<input checked="" type="checkbox"/> Rep. of type, period, method of construction	<input checked="" type="checkbox"/> Associated with devel. of locality	<input type="checkbox"/> Not High Style
<input type="checkbox"/> Other	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other

JUSTIFICATION OF SIGNIFICANCE:

Dam 83 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway channel walls is visually the most evident element of this design type.

Recorded by: Mary E. McCormick, RTI, Butte, MT

Date: July 11, 1989

NDCRS ARCHITECTURAL SITE FORMS

Field Code RTI89USR01

Page 3

SITS Number 32WD

ACCESS: From Foxholm take Highway 52 northwest 0.6 miles to the T-intersection with a gravel county road from the north; follow said gravel road north for about 5 miles directly to Dam 83.

DESCRIPTION OF SITE: Dam 83 is located on the Upper Souris National Wildlife Refuge in Renville and Ward counties in north-central North Dakota. The Upper Souris refuge contains 32,000 acres of land and water and is situated within a narrow 30-mile stretch of the Souris Valley. Most of the northern two-thirds of the refuge is occupied by Lake Darling, a 10,000 acre storage reservoir which is impounded by Dam 83. Downstream, or southeast of Dam 83 the refuge contains thousands of acres of restored waterfowl habitat which, includes several small bodies of open water, marshes, and wet meadow lands. These water developments are maintained by Dam 83, and two other earthfill dams (Dams 83 and 87) as well as several other diversion structures, including, spillways, control works, dikes, levees, and channels. The site of Dam 83 is limited to the dam structure itself. The dam is in excellent condition and retains its historic integrity.

FEATURES: Feature 1: Dam 83

SITE AREA: 48,564 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S Fish and Wildlife Service, Upper Souris National Wildlife Refuge Headquarters, Foxholm, ND, (701) 468-5467

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salver National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downstream reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salver refuge); and the about (see continuation form, pages 6-7)

Recorded by Mary E. McCormick, RTI

Date July 1989

Item:

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY (page 2)

upstream zone of the embankment. The trench had a standard bottom width of 6 feet but its depth varied from about 5 to 10 feet. Installed in the trench was Wakefield sheet piling, which consists of 3-inch by 8-inch, tongue-and-grove timbers.¹ Puddling around the sheet piling was complete and provides the dam with an impervious core.²

The earthfill embankment is comprised of two zones of material with each zone being about equal in volume. The upstream zone is impervious and consists of an earth, sand and gravel mixture which was laid in 6-inch layers that were each sprinkled with water and then compacted by rollers. The downstream zone is semi-impervious and consists of 1-foot layers of "bank run" rock, gravel and sand that were also each sprinkled with water and compacted by a roller.³ The upstream face of the embankment has a 3:1 slope. This surface above an elevation of 1585 feet above sea level was originally covered by a layer of whole field stones but in April 1976, it was resurfaced with fractured-rock riprap.⁴ The downstream slope of the embankment varies from 3:1 near the base to 2:1 near the crest, and the segment above water is covered by sod. The crest of the embankment is at an elevation of 1606 feet.

The service spillway is an uncontrolled structure located along the east end of the earthfill embankment. At the upstream end of the spillway there is a 320-foot long concrete cutoff wall, or weir, which is 15 inches thick and has a crest elevation of 1598 feet. The cutoff wall originally held collapsible flashboards but these have long since been removed. Along the downstream edge of the cutoff wall, the spillway has an apron consisting of a 115-foot long slab of reinforced concrete which also serves as a segment of the county highway. When it was originally built, the apron was just 9 inches thick but in 1970 it was entirely resurfaced with a 6-inch concrete slab which was affixed to the original with dowels. The downstream end of the apron feeds into an earthen discharge channel which consists of two segments. The first channel section is about a 300 feet long and is lined by a stone masonry while the second section is 346 feet long and lined by rock riprap. The discharge channel is flanked on either side by low, stone masonry walls.⁵

The emergency spillway is an uncontrolled channel located at the right abutment. This unlined earthen structure has a crest width of 250 feet, and a crest elevation of 1602 feet. Near its downstream end is an unlined discharge channel.

The outlet works extend through the earthfill embankment and is located about 60 feet east of the right abutment. Components of the outlet works include a reinforced concrete intake structure with trashracks, roller-bearing gates, two outlet tunnels, and a stilling basin. The intake structure is situated on the upstream side of the embankment and consists of two identical chambers. The chambers each measure 25 feet high by 12 feet wide and are separated by a 2-foot thick concrete wall. Extending upstream from the intake chambers is a reinforced concrete apron as well as flared wing walls, 12 inches wide each. Laid across the top of each of the intake structures are five steel I-beams, 4 feet on center, from which the trashracks are suspended. The trashracks are each about 12 feet wide by 16 feet high and are composed of vertical, 1-inch square bars, 11-1/2 inches on center, affixed to horizontal, 3/4-inch by 7-1/2-inch steel plates, 6 inches on center. A crane mounted on a pivot structure atop the intake is used for lifting the and cleaning the trashracks. The existing trashracks and supporting I-beams were installed in 1976 after the original trashracks were damaged by ice carried in flood waters.⁶

On the downstream side of the intake structure are two parallel 10-foot by 12-foot roller gates, each having a structural steel frame with a sheet metal skin on the upstream

Field Code: RTI89USR01

Continuation Form

Site Number 32WD

Item:

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY (page 2)

face. These gates were installed in 1981 and replaced the original two gates which were each, manually controlled, 12-foot by 10-foot, breast-wall, bronze-bushed, roller-bearing gates manufactured by the Hardesty Company.⁷ The existing gates have slide gate operators which are mounted on stands located on the deck of the intake structure. The operators for the gates are driven by electric motors and can be controlled manually on-site, or remotely controlled from the maintenance shop on the east abutment.

The two outlet tunnels extend through the dam about 90 feet from the roller gates to the dam's downstream side. Both of the tunnels are rectangular structures (10 feet by 14 feet) and are each constructed of reinforced concrete, 18 inches thick. The outlet tunnels empty into the stilling basin which now is a concrete-lined structure extending 300 feet downstream from the outlet. When it was originally constructed, the stilling basin was lined with concrete for a length of only 40 feet, with the remaining section downstream being lined by stone masonry and riprap. In April 1943, the still basin experienced considerable erosion from large discharges. Later that same year, a cutoff wall of Wakefield sheet piling was installed along the downstream edge of the basin's original concrete lining and then the entire basin was relined with concrete for a total length of about 275 feet. Between 1944 and 1948, further erosion occurred downstream from the stilling basin and as a result, in 1949, the concrete lining was extended an additional 26 feet downstream and Wakefield sheet piling was installed along the new downstream edge of the basin floor. Also at this time, two low concrete "baffle" walls were built across the width of the stilling basin floor. These walls, which are spaced about 60 feet apart, act to dissipate the energy of the water as it is released from the outlet tunnels.⁸

The downstream end of the stilling basin discharges into one of the ponds (Pond A) developed at the refuge for waterfowl habitat. Water is further channeled from Pond A to Ponds B and C. All three of the ponds lie several feet about the river channel and their level may be altered by a series of dikes, control works, and channels which were developed by Civilian Conservation Corps (CCC) forces in the mid-1930s at the same time as the dams were built. The control structures associated with Ponds A, B, and C are not evaluated in this report. Along the east side of the stilling basin, and about 240 feet downstream from the outlet tunnel portals, there is a stop log structure which allows for discharges from the dam to be diverted into the main river channel.

Since its original construction, Dam 83 has sustained alterations to all of its major components. Modification to the embankment and service spillway, however, are minor and have had an insignificant effect on their overall appearance or function. The outlet works have been more seriously impacted by replacement of the original trash gates, and roller gates, as well as reconstruction of the stilling basin. Nevertheless, the outlet works still retains many aspects of its original form and design, as well as its basic function within the operation of the dam. The overall integrity of the dam remains good.

Item:

STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 83 on the Upper Souris refuge was constructed in 1935-36, by the Hallet Construction Company of Crosby, Minnesota.⁹

Since its original construction, Dam 83 has sustained alterations to all of its major components. Modification to the embankment and service spillway, however, are minor and have had an insignificant effect on their overall appearance or function. The outlet works have been more seriously impacted by replacement of the original trash gates, and roller gates, as well as reconstruction of the stilling basin. Nevertheless, the outlet works still retains many aspects of its original form and design, as well as its basic function within the operation of the dam. The overall integrity of the dam remains good.

Dam 83 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Construction of Dam 83 at the Upper Souris refuge further insured an adequate water supply to habitat areas at both refuges. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

Dam 83 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

Dam 83 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

Field Code: RTI89USR01

Continuation Form

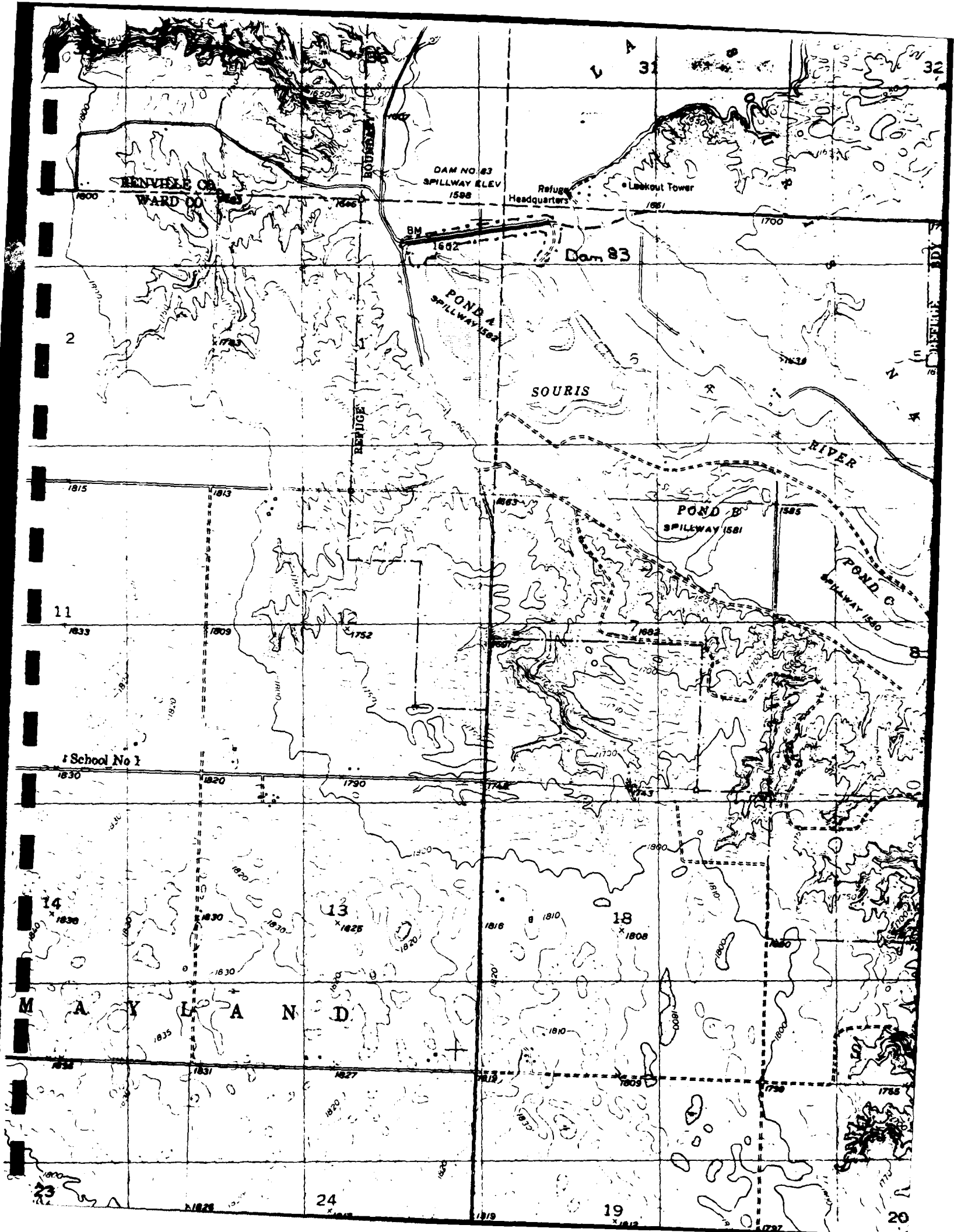
Site Number 32WD

Item:

FEATURE DESCRIPTION AND STATEMENT OF INTEGRITY (page 2) and
STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

ENDNOTES

1. U.S. Department of Agriculture, Bureau of Biological Survey, drawing no. 3a-G, "Upper Souris ... Plan, Profile, and Typical Section, Structure No. 83," July 1937, included as attachment to Gene M. Elliott and Glen D. Cheney to Chief, Inspections Branch, Memorandum serving as the preliminary SEED inspection report for the Upper Souris Dam 30, 30 October 1982, copy on file at the Headquarter Offices of the Upper Souris National Wildlife Refuge, North Dakota; Minot Daily News, 21 Sept. 1935, p. 1.; Irv Rostad, personal interview with Mary E. McCormick, Upper Souris Wildlife Refuge Headquarters, 17 April 1989.
2. Minot Daily News, 24 Sept. 1935, p. 1.
3. U.S. Department of Agriculture, drawing no. 3a-G, "Upper Souris...Plan, Profile... Structure No. 83;" Minot Daily News, 21 Sept. 1935, p. 1.
4. Elliott and Cheney, Memorandum serving as the preliminary SEED report for Dam 83, p. 7.
5. Alterations to the service spillway are cited from Elliott and Cheney, Memorandum on the preliminary SEED report for Dam 83, p. 13
6. Ibid., p. 25.
7. Ibid.
8. Ibid., p. 28.
9. Ward County Independent, 7 March 1935, p. 1; Minot Daily News, 1 April 1935, p. 1.



NUCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 WD 0.0.6.1
State County Site Number

Field Code RT1189USRC2 Site Name UPPER SOUBIS DAM 87
Field Code _____ Site Name _____

Map Quad _____ COLUMBIAN E
Map Quad _____

LTL <u>0</u> Twp <u>157</u>	R <u>34W</u> Sec <u>08</u>	QQQ <u>1</u> QQ <u>6</u> Q <u>6</u>
LTL <u>0</u> Twp <u>157</u>	R <u>34W</u> Sec <u>09</u>	QQQ <u>3</u> QQ <u>2</u> Q <u>7</u>
LTL _____ Twp _____	R _____ Sec _____	QQQ _____ QQ _____ Q _____
LTL _____ Twp _____	R _____ Sec _____	QQQ _____ QQ _____ Q _____
LTL _____ Twp _____	R _____ Sec _____	QQQ _____ QQ _____ Q _____
LTL _____ Twp _____	R _____ Sec _____	QQQ _____ QQ _____ Q _____

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

City _____

Street # _____

Street # _____

Street Name _____

Street Name _____

of Features 0.1

FEATURE DATA

0.1 Feature #

1936 Const Date

_____ Feature Date

1.3 Feature Type

0.6 Context

7 Condition

1 Significance

9 Plan Shape

PORCH

_____ Original

_____ Addition/Altered

_____ Removed/None

BUILDING MATERIALS

0.8 Structure System

_____ Primary Exterior Finish

_____ Secondary Exterior Finish

_____ Main Entrance

_____ Ethnic

_____ Style

041789 Fieldwork Date

_____ Builder

_____ Engineer

_____ Designer Architect

_____ LINEAR SHAPE Other Information

_____ Soil Association _____ Ecozone _____ Area Signf _____ MS Number

_____ Soil Association _____ Ecozone _____ Area Signf _____ MS Number

_____ CR Type _____ Verified Site _____ Non-Site _____ E C F _____ T F

_____ State Registry

_____ National Register

Coder MEM/RTI

Date Coded 07-11-87

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89USR02

SITS Number 32WD

Feature No. 01

Name in Name Block Upper Souris Dam 87

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<u>n/a</u>	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<u>n/a</u>	<input type="checkbox"/> Other	<u>1</u> Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<u>n/a</u>		<u>n/a</u>	<u>interview</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<u>n/a</u>				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 87 is located in Ward County (SE 1/4 Sec. 8 and SW 1/4 Sec. 9, T157N, R84W) and is situated about 2-1/2 miles southeast, or downstream, from refuge headquarters near Dam 83 at Lake Darling. Dam 87 impounds water from the Souris River into small ponds, as well as other wetlands suitable for waterfowl habitat such as marshes and meadows.

Dam 87 is an homogeneous earthfill embankment with an emergency spillway, a service spillway, and outlet works. The dam lies along a southwest/northeast axis, and is 20 feet high. The crest of the earthfill embankment is flat and about 8 feet wide; 1800 feet long, and is at an elevation of 1583.5 feet. The upstream side of the embankment has a slope of 5:1 while the slope of the downstream side is 3:1. The crest and slopes of the embankment are vegetated by grass and low brush.

The emergency spillway is an uncontrolled weir located along the crest of the embankment, near the east abutment of the dam. The weir is of stone masonry construction and consists of a 700-foot long wall with flared wing walls and a stone masonry apron below its downstream side. At the west end of the weir wall is a concrete slot for a stop log structure, but this slot has been in-filled with dirt and the stop log structure is inoperable. The crest elevation of the weir is 1579.1 feet. (see continuation form, page 4).

SIGNIFICANCE

☒ SIGNIFICANT

☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<input checked="" type="checkbox"/> Rep. of type, period, method of construction	<input checked="" type="checkbox"/> Associated with devel. of locality	<input type="checkbox"/> Not High Style
<input type="checkbox"/> Other	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other

JUSTIFICATION OF SIGNIFICANCE:

Dam 87 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway weir is visually the most evident element of this design type.

Recorded by: Mary E. McCormick, RTI, Butte, MT

Date: July 11, 1989

NDCRS ARCHITECTURAL SITE FORMS

Field Code RTI89USR02

Page 3

SITS Number 32WD

ACCESS: From Foxholm take county highway 52 northwest 0.6 miles to the T-intersection with a gravel county road from the north; follow said gravel road north for about 4-1/2 miles to T-intersection with a two-track road from the east; follow said two-track road east-southeast for about 1-3/4 miles to the west end of Dam 87.

DESCRIPTION OF SITE: Dam 87 is located on the Upper Souris National Wildlife Refuge in Renville and Ward counties in north-central North Dakota. The Upper Souris refuge contains 32,000 acres of land and water and is situated within a narrow 30-mile stretch of the Souris Valley. Most of the northern two-thirds of the refuge is occupied by Lake Darling, a 10,000 acre storage reservoir. Downstream, or southeast of Dam 83 the refuge contains thousands of acres of restored waterfowl habitat which, includes several small bodies of open water, marshes, and wet meadow lands. These water developments are maintained by Dam 87, and two other earthfill dams (Dams 83 and 96) as well as several other diversion structures, including, spillways, control works, dikes, levees, and channels. The site of Dam 87 is limited to the dam structure itself. The dam is in excellent condition and retains its historic integrity.

FEATURES: Feature 1: Dam 87

SITE AREA: 28,329 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S Fish and Wildlife Service, Upper Souris National Wildlife Refuge Headquarters, Foxholm, ND, (701) 468-5467

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salver National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downstream reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salver refuge); and the about (see continuation form, page 5)

Recorded by Mary E. McCormick, RTI

Date July 1989

Field Code: RTI89URS02

Continuation Form

Site Number 32WD

Item:

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY (page 2)

The service spillway and outlet works for the dam are located at the southwest abutment and are incorporated into a reinforced concrete structure which spans the main river channel. Concrete piers divide the structure into 6-bays and also support an overhead walkway which consists of a concrete deck with gas pipe railing. The walkway provides access to the outlet works controls as well as the rest of the dam. The two outer bays at each end of the structure contain concrete weir walls, which comprise the service spillway. Each of the four weir walls, however, have been modified by the installation across the crest of a 3-inch by 12-inch plank which has raised the top elevation of the spillway to 1578.2 feet. The planks are bolted at either end to 2 wooden posts which are secured to the walkway above with steel channel section hangers.

The outlet works, located in a single bay near the middle of the concrete structure, consists of a radial gate which measures 16 feet by 8 feet, and has a top elevation of 1578.4 feet. The radial gate is located at the upstream side of the concrete structure. Just east of the radial gate is a 4-foot by 4-foot sluice gate. Both the radial gate and sluice gate are operated by manual hoists and the controls for the hoists are mounted on the walkway above. The cast base for hoist controls reads, "Western Foundry Co., Portland, OR" and the wheel handle for the radial gate is embossed with the letters, "U.S.R.S.," which stand for United States Reclamation Service, the predecessor agency to the Bureau of Reclamation. Immediately downstream from the gates is a stilling basin which consists of a concrete apron and plunge pool.

This dam appears to retain excellent integrity in all aspects.

Field Code: RTI89USR02

Continuation Form

Site Number 32WD

Item:

STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 87 on the Upper Souris refuge was constructed in 1935-36, by private contractors, perhaps the Hallet Construction Company of Crosby, Minnesota.¹

Dam 87 appears to retain excellent integrity in all aspects.

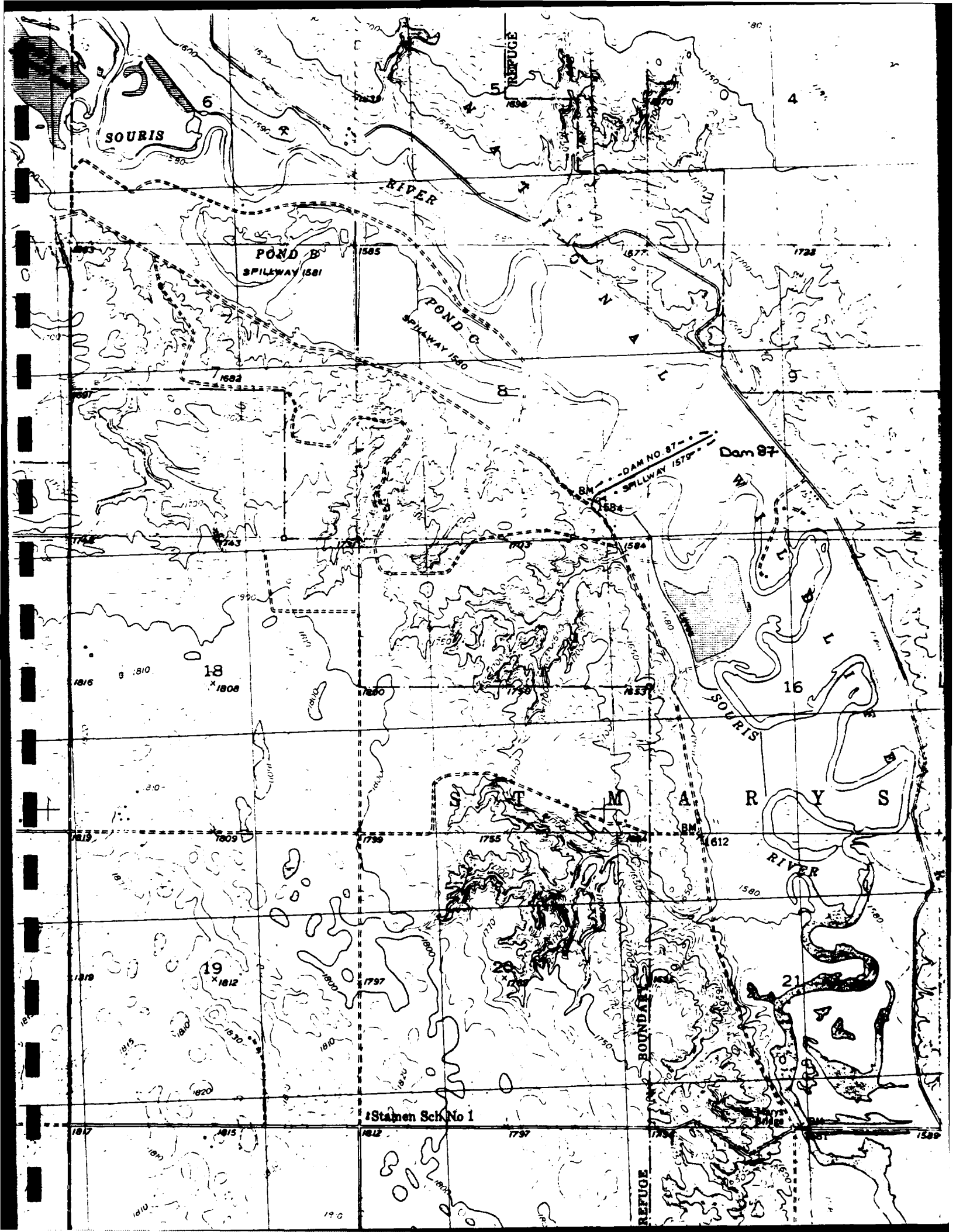
Dam 87 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

Dam 87 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

Dam 87 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

ENDNOTES

1. Irv Rostad, personal interview with Mary E. McCormick, Upper Souris Wildlife Refuge Headquarters, 17 April 1989.



NUCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 WD 0.062
State County Site Number

Field Code RT1.8.9.05.2.03 Site Name UPPER SOUTHERN DAM 9.6
Field Code _____ Site Name _____

Map Quad _____
Map Quad _____

LTL <input checked="" type="checkbox"/>	Twp <u>15.7</u>	R <u>84.W</u>	Sec <u>34</u>	QQQ <u>1</u>	QQ <u>1</u>	Q <u>7</u>
LTL <input checked="" type="checkbox"/>	Twp <u>15.7</u>	R <u>84.W</u>	Sec <u>34</u>	QQQ <u>8</u>	QQ <u>8</u>	Q <u>6</u>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ _____	QQ _____	Q _____
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ _____	QQ _____	Q _____
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ _____	QQ _____	Q _____
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ _____	QQ _____	Q _____

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

City _____

Street # _____ Street # _____

Street Name _____ Street Name _____

of Features 01

FEATURE DATA

<u>01</u> Feature #	<u>13</u> Feature Type	<u>7</u> Condition
<u>1936</u> Const Date	<u>06</u> Context	<u>1</u> Significance
<input type="checkbox"/> Feature Date		<u>9</u> Plan Shape

PORCH

BUILDING MATERIALS

<input type="checkbox"/> Original	<u>08</u> Structure System	<input type="checkbox"/> Main Entrance
<input type="checkbox"/> Addition/Altered	<input type="checkbox"/> Primary Exterior Finish	
<input type="checkbox"/> Removed/None	<input type="checkbox"/> Secondary Exterior Finish	

<input type="checkbox"/> Ethnic	<input type="checkbox"/> Builder
<input type="checkbox"/> Style	<input type="checkbox"/> Engineer
<u>041789</u> Fieldwork Date	<input type="checkbox"/> Designer Architect

_____ Other Information

<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<input type="checkbox"/> MS Number
<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<input type="checkbox"/> MS Number
<input type="checkbox"/> CR Type	<input type="checkbox"/> Verified Site	<input type="checkbox"/> Non-Site	<input type="checkbox"/> E C F <input type="checkbox"/> T F
<input type="checkbox"/> State Registry	<input type="checkbox"/> National Register		

Coder mem/RT1

Date Coded 07-11-89

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89USR03

SITS Number 32WD

Feature No. 01

Name in Name Block Upper Souris Dam 96

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<u>n/a</u>	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<u>n/a</u>	<input type="checkbox"/> Other	<u>1</u> Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<u>n/a</u>		<u>n/a</u>	<u>interview</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<u>n/a</u>				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 96 is located in Ward County (SW 1/4 Sec. 34, T157N, R84W) and is situated about 5 miles southeast, or downstream, of refuge headquarters near Dam 83 at Lake Darling. Dam 96 impounds water from the Souris River into several small open bodies of water, as well as other wetlands suitable for waterfowl habitat such as marshes and meadows.

Dam 96 consists of homogeneous earthfill embankment, an emergency spillway, a service spillway, and outlet works. The dam is oriented along an east/west axis and has a total length of about 3000 feet. The earthfill embankment of the dam has a structural height of 18.1 feet, an hydraulic height of 15.4 feet, a crest elevation of 1579.6 feet, and a crest width that varies between 8 and 14 feet. The upstream side of the embankment has a slope of 7:1 while the slope of the downstream side is 4:1. The crest and slopes of the embankment are vegetated by grass and low brush. (see continuation form, page 4).

SIGNIFICANCE

☒ SIGNIFICANT

☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<input checked="" type="checkbox"/> Rep. of type, period, method of construction	<input checked="" type="checkbox"/> Associated with devel. of locality	<input type="checkbox"/> Not High Style
<input type="checkbox"/> Other	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other

JUSTIFICATION OF SIGNIFICANCE:

Dam 96 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway weir is visually the most evident element of this design type.

Recorded by: Mary E. McCormick, RTI, Butte, MT

Date: July 11, 1989

NDCRS ARCHITECTURAL SITE FORMS

Field Code RTI89USR03

Page 3

SITS Number 32WD

ACCESS: From Foxholm take county highway 52 northwest 0.6 miles to the T-intersection with a gravel county road from the north; follow said gravel road north for about 4-1/2 miles to T-intersection with a two-track road from the east; follow said two-track road east-southeast for about 5 miles to the west end of Dam 96.

DESCRIPTION OF SITE: Dam 96 is located on the Upper Souris National Wildlife Refuge in Renville and Ward counties in north-central North Dakota. The Upper Souris refuge contains 32,000 acres of land and water and is situated within a narrow 30-mile stretch of the Souris Valley. Most of the northern two-thirds of the refuge is occupied by Lake Darling, a 10,000 acre storage reservoir. Downstream, or southeast of Lake Darling the refuge contains thousands of acres of restored waterfowl habitat which, includes several small bodies of open water, marshes, and wet meadow lands. These water developments are maintained by Dam 96, and two other earthfill dams (Dams 83 and 87) as well as several other diversion structures, including, spillways, control works, dikes, levees, and channels. The site of Dam 96 is limited to the dam structure itself. The dam is in excellent condition and retains its historic integrity.

FEATURES: Feature 1: Dam 96

SITE AREA: 28,329 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S Fish and Wildlife Service, Upper Souris National Wildlife Refuge Headquarters, Foxholm, ND, (701) 468-5467

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salver National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downstream reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salver refuge); and the about (see continuation form, page 5)

Recorded by Mary E. McCormick, RTI

Date July 1989

Item:

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY (page 2)

The emergency spillway is an uncontrolled structure, located near the center of the earthfill embankment. It consists of a 700-foot long weir wall with a crest elevation at 1577.2 feet. Under the crest of the entire spillway is a 6-foot deep, timber cutoff wall. Most of the weir wall is the original 4-foot high stone masonry wall with stone masonry wing walls, and a 4-foot long stone masonry apron downstream. In 1951, however, about a 75-foot long section at the west end of the weir, including the apron, was removed and replaced with a reinforced concrete wall supported on its downstream side by concrete buttress, spaced 12 feet on center. At this time the west wing wall was also reinforced by construction of a concrete wall along its inside face.¹ The conveyance structure for the emergency spillway is a 15-foot to 20-foot wide ditch which connects the downstream side of the spillway to the main river channel. The ditch runs parallel to and approximately 20 feet downstream from the toe of dam.

The service spillway and outlet works for the dam are located at the east abutment and are incorporated into a single reinforced concrete structure which spans the main river channel. All four corners of the structure are buttressed by stone masonry wing walls. Concrete piers divide the structure into 6-bays and also support a concrete walkway with gas pipe railing, which provides access to the outlet works controls as well as the rest of the dam. The two outer bays at each end of the structure are 13 feet wide each and contain concrete weir walls which comprise the service spillway. The weir walls have crest elevations of 1576.9 feet.

The outlet works, located in a single bay at the middle of the concrete structure, consists of a radial gate which measures 16 feet by 8 feet and has a top elevation of 1577 feet. The radial gate is located along the upstream side of the concrete structure. In the small bay just east of the radial gate is a 4-foot by 4-foot, sluice gate with a flow line elevation of 1562 feet. Both the radial gate and sluice gate are operated by manual hoists wheels which are mounted on the walkway above. Immediately downstream from the outlet is a stilling basin with the first 4-feet being stone masonry and the remainder being a concrete apron.

The overall integrity of the dam remains good. Although the spillway has been altered, its basic form is intact and its function within the operation of the dam is unchanged. Both the dam embankment and outlet works retain excellent integrity in all aspects.

Field Code: RTI89USR03

Continuation Form

Site Number 32WD

Item: STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 96 on the Upper Souris refuge was constructed in 1935-36, by private contractors, perhaps the Hallet Construction Company of Crosby, Minnesota.²

The overall integrity of Dam 96 remains good. Although the spillway has been altered, its basic form is intact and its function within the operation of the dam is unchanged. Both the dam embankment and outlet works retain excellent integrity in all aspects.

Dam 96 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

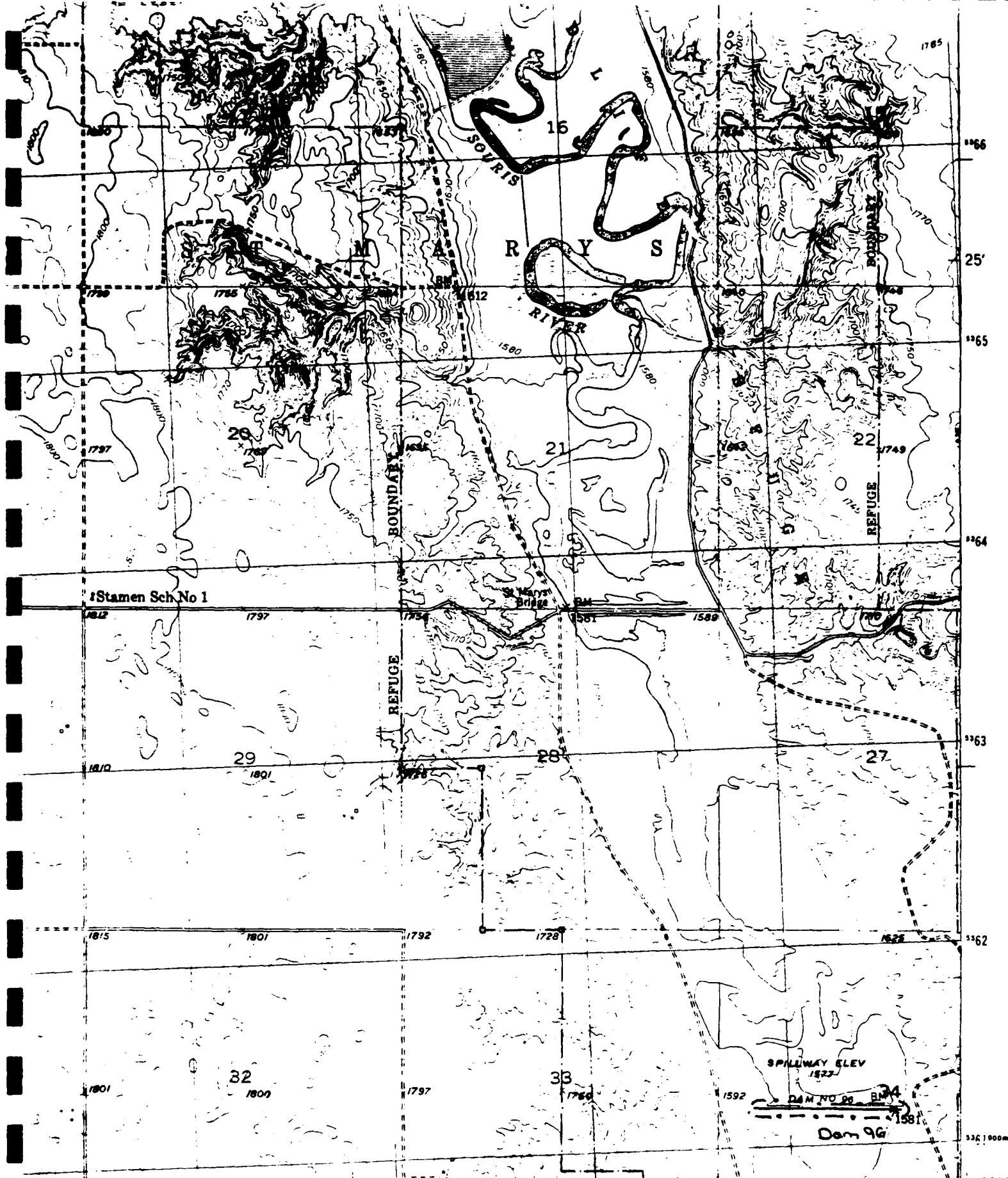
Dam 96 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

Dam 96 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

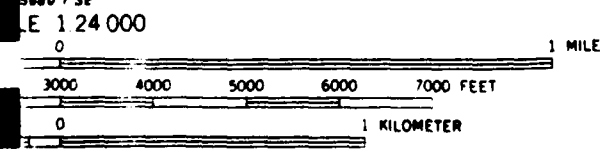
ENDNOTES

1. Terry L. Clayton and Delano Jenkins, "Upper Souris Dam 96, Federal Inventory No. ND 00331: Intermediate Seed Inspection Report, October 26, 1988," January 1989, p. 7, report prepared for the U.S. Fish and Wildlife Service, copy on file at the Headquarter Offices for Upper Souris National Wildlife Refuge, North Dakota.

2. Irv Rostad, personal interview with Mary E. McCormick, Upper Souris Wildlife Refuge Headquarters, 17 April 1989.



DES LACS
5680 1 SE
E 1 24 000
11 32'30" 12



INTERVAL 10 FEET

INTERIOR- GEOLOGICAL SURVEY, RESTON VIRGINIA-1980
3140000E
48°22' 101°30'

ROAD CLASSIFICATION

Primary highway, all weather, hard surface	Light-duty road, all weather, improved surface
Secondary highway, all weather, hard surface	Unimproved road, fair or dry weather

NDCRS SITE FORM
HISTORICAL ARCHEOLOGICAL SITES

Page 1

1. N
2. E
3. S
4. W
5. N
6. S
7. S
8. N
9. C

I. SITE I.D.

SITS # 3.2 WD 04.13
State County Site Number
Field Code RT.189.US.20.4 Site Name C.C. CAMP, MAUREK
Field Code _____ Site Name _____
Map Quad _____ Camp, NE
Map Quad _____
LTL ☒ Twp 157 R 84W Sec 06 QQQ ☒ QQ 5 Q 6
LTL ☐ Twp _____ R _____ Sec _____ QQQ ☐ QQ _____ Q _____
LTL ☐ Twp _____ R _____ Sec _____ QQQ ☐ QQ _____ Q _____
LTL ☐ Twp _____ R _____ Sec _____ QQQ ☐ QQ _____ Q _____
LTL ☐ Twp _____ R _____ Sec _____ QQQ ☐ QQ _____ Q _____
LTL ☐ Twp _____ R _____ Sec _____ QQQ ☐ QQ _____ Q _____

II. SITE DESCRIPTION

FEATURE TYPE	CULTURAL MATERIAL	<u>44</u> Site Type
<input checked="" type="checkbox"/> Cm Scatter	<input checked="" type="checkbox"/> Bone	<u>0.6</u> Context
<input checked="" type="checkbox"/> Chimney	<input type="checkbox"/> Ceramics	<u>2700</u> Site Area
<input checked="" type="checkbox"/> Depression	<input checked="" type="checkbox"/> Charcoal	m. x m.
<input checked="" type="checkbox"/> Dump	<input checked="" type="checkbox"/> Cloth	<u>_____</u> Cultural Depth cm.
<input checked="" type="checkbox"/> Earthworks	<input checked="" type="checkbox"/> Faunal Remains	<input checked="" type="checkbox"/> Depth Indicator
<input checked="" type="checkbox"/> Fortification	<input checked="" type="checkbox"/> Fire Cracked Rock	Occupation Date
<input checked="" type="checkbox"/> Foundation	<input checked="" type="checkbox"/> Floral Remains	Begin <u>1935</u> End <u>1942</u>
<input checked="" type="checkbox"/> Grave	<input type="checkbox"/> Glass	Basis For Dating
<input checked="" type="checkbox"/> Hearth	<input checked="" type="checkbox"/> Hide, Hair, Fur	<u>10</u>
<input checked="" type="checkbox"/> Machinery	<input type="checkbox"/> Human Remains	<input checked="" type="checkbox"/> Cm Density
<input checked="" type="checkbox"/> Quarry/Mine	<input type="checkbox"/> Masonry	<input checked="" type="checkbox"/> Isolated Find
<input checked="" type="checkbox"/> Rock Art	<input type="checkbox"/> Metal	
<input checked="" type="checkbox"/> Trail	<input type="checkbox"/> Plastic	
<input checked="" type="checkbox"/> Wreck	<input type="checkbox"/> Rubber	
<input type="checkbox"/> Other	<input type="checkbox"/> Shell	
	<input type="checkbox"/> Wood	
	<input checked="" type="checkbox"/> Other	

III. ENVIRONMENT

☒ Landform 1 15 Landform 2 00 Slope/Exposure _____ Ecosystem _____
☐ Landform 1 _____ Landform 2 _____ Slope/Exposure _____ Ecosystem _____
Elevation 49.2 m. Drainage System 09.01.00.01 View, Degree 3 View, Distance 1
Dist Perm Water 305 m. Perm Water Type 3 Dist Seas Water _____ m. Seas Water Type _____

IV. C.R.M.

2 Ownership _____ Ownership _____
10.11.71.8.9 Fieldwork Date _____ Fieldwork Date _____
☒ Site Condition ☒ Collection ☒ Test/Probe ☒ Excavation
Additional Information _____ Management Recommendation _____

SHSND USE

_____ Soil Association _____ Ecozone _____ Area Signf _____ MS Number _____
_____ Soil Association _____ Ecozone _____ Area Signf _____ MS Number _____
☐ CR Type ☐ Verified Site ☐ Non-Site ☐ E C F ☐ T F
☐ State Registry ☐ National Register

Coder MSM/BTJ

Date Coded 7.11.89

NDCRS ARCHEOLOGICAL AND HISTORICAL SITE FORMS

Field Code RTI89USR04

Descriptive Section

SITS Number 39WD413

Page 2

1. Access: From Foxholm take Highway 52 northwest 0.6 miles to the T-intersection with a gravel county road from the north; follow said gravel road north for about 5 miles to the west end Dam 83; turn east and continue on roadway across the dam for a total distance of about 3/4 a mile to a T-intersection and turn south onto gravel road; continue south and then southeast for about 3/4 of a mile, or just before the road veers to the northeast; the site area is immediately north of the road.

2. Description of Site: The site of CCC Camp Maurek is located in Ward County on the Upper Souris National Wildlife Refuge, about a mile south of the refuge headquarter near the east end of Dam 83, or Lake Darling Dam. The site is situated about 1000 feet northeast of the east river bank and occupies a level terrace situated at the base of upland hills. The general site area is vegetated by short prairie grasses.

Camp Maurek was established in May 1935 to house CCC Company 796 which was assigned to the Bureau of Biological Survey to assist in the development of the Upper Souris National Wildlife Refuge. During its period of occupation (1935-1941), Camp Maurek contained over 30 buildings that included domestic structures for camp personal such as barracks, kitchen and mess hall, and an infirmary; as well as auxiliary facilities such as work shops, garages, and storage buildings. Most, if not all, of these buildings were wooden structures on concrete foundations. Soon after the camp was abandoned by the CCC, almost all of its buildings in the fall of 1942 were dismantled their lumber and transferred to the War Department for use in conjunction with construction of the Alaskan Highway. Only four buildings at Camp Maurek were left standing and included a machine shop, oil house, storage shed, and a barracks. Subsequently, the buildings were extensively altered by the Fish and Wildlife Service and used as maintenance facilities for the refuge until the early 1980s when all four were torn down.

The only remanent from Camp Maurek at the site today is located on the hillside overlooking the north end of the site area and consists of a stone alignment (Feature 1) which reads, "Camp Maurek." A few small fragments of glass and metal are scattered on the site surface. According to Irv Rostad, retired Fish and Wildlife Service employee, all foundation remains at the camp were broken up and buried in a common pit along with other debris. The site area is currently landscaped by two rows of trees which may have been planted by the CCC. Also at the site there is a modern chain link fence which encloses an area used by the Fish and Wildlife Service to store abandoned machinery.

3. Description of Cultural Materials (Quantify and identify): 2-3 fragments of clear glass, and 2-3 fragments of metal.

4-6 # of items of cultural material observed

0 # Collected

4. Artifact Repository

5. Description of Subsurface Testing: due to the sensitive and protective nature of the wildlife refuge grounds no subsurface testing was conducted.

Recorded by Mary E. McCormick

Date July 1989

NDCRS ARCHEOLOGICAL AND HISTORICAL SITE FORMS

Field Code RTI80USR04

Descriptive Section

SITS Number 39WD413

Page 3

6. Current Use of Site: wildlife refuge

7. Owner's Name/Address: U.S Fish and Wildlife Service, Upper Souris National Wildlife Refuge Headquarters, Foxholm, ND, (701) 468-5467

8. Vegetation: mixed grasses

9. Cover (% of visible ground): 0-25%

10. Man-hours spent on site: 2

11. Project Title: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project
P.I. Fredric Quivik

12. Report Title: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salyer National Wildlife Refuge. Author: Mary E. McCormick and Fred Quivik, Renewable Technologies, Inc., Butte, MT.

13. Other Published References

14. Description of Collections Observed: none

15. Owner-Address of Collections Observed: n/a

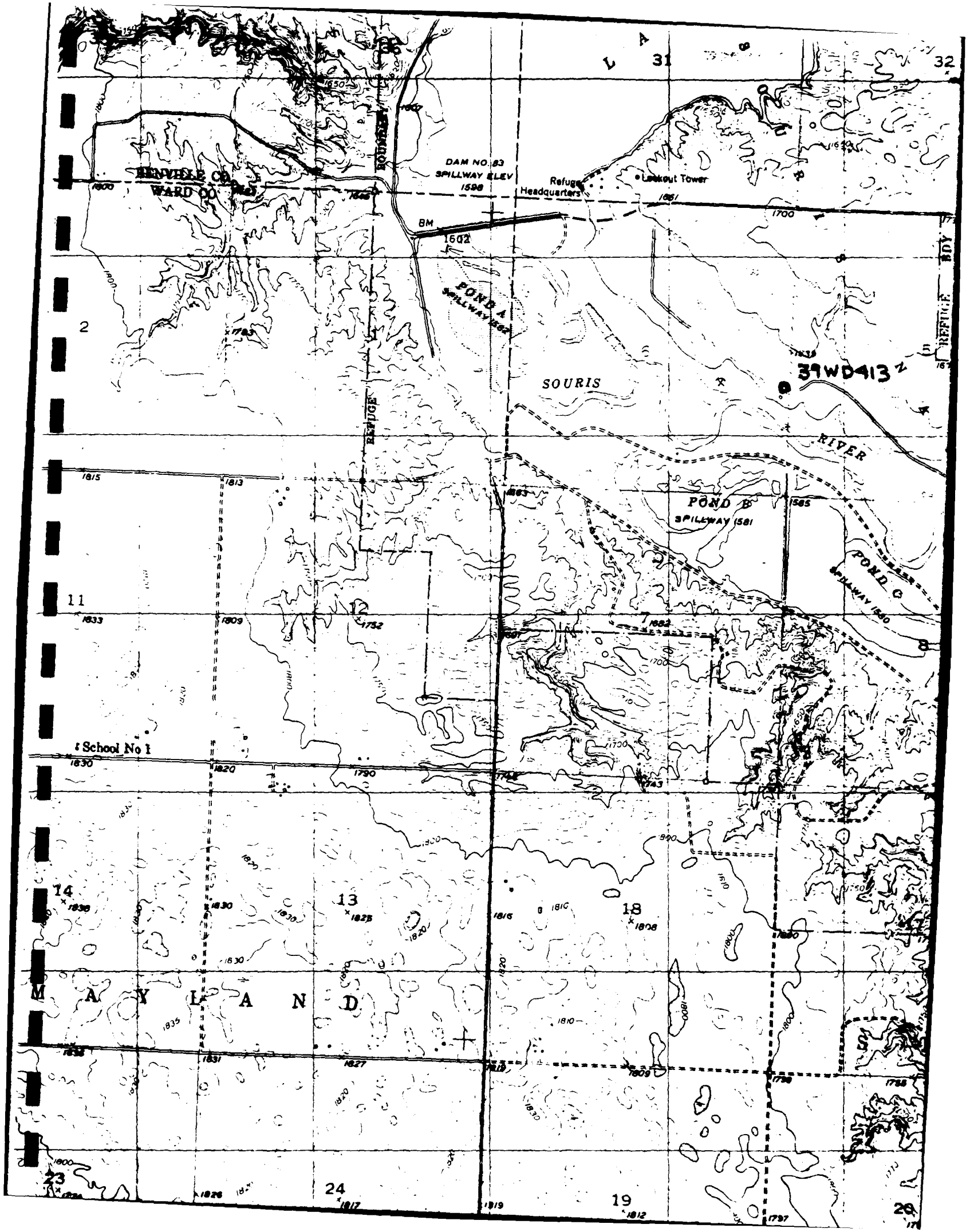
16. Statement of Integrity: Camp Maurek has lost all integrity of design, materials, workmanship, feeling, and association.

17. Statement of Significance: The site of CCC Camp is not eligible for listing on the National Register of Historic Places. Because the camp has lost all physical integrity, it no longer retains the ability to recall its historic identity or character as a CCC facility. Furthermore, because information about CCC camps is extremely well documented in the written record, neither of the camp sites has the potential to yield additional important information. .

18. Comments/References: historical information on Camp Maurek was derived from, "Narrative Reports for the Upper Souris National Wildlife Refuge," 1935-1941, on file at the refuge headquarters; the "Official Annual 1937: Civilian Conservation Corps, North Dakota, Seventh Corps Area," on file at the headquarter offices for the J. Clark Salyer National Wildlife Refuge; and the Records of the CCC-State Directors Correspondence, Records Group 35, National Archives, Washington, D.C.

Recorded by Mary E. McCormick, RTI

Date July 1989



NUCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 W.H. 0.0.4.8
State County Site Number

Field Code R.T.1.89.J.C.S.O.1 Site Name LOWER SOURIS DAM 32.0
Field Code _____ Site Name _____

Map Quad _____ Upstream
Map Quad _____

LTL <input checked="" type="checkbox"/>	Twp <u>15.9</u>	R <u>7.7W</u>	Sec <u>1.7</u>	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <u>2</u>
LTL <input checked="" type="checkbox"/>	Twp <u>15.9</u>	R <u>7.7W</u>	Sec <u>1.8</u>	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <u>6</u>
LTL <input type="checkbox"/>	Twp <u>15.9</u>	R <u>7.7W</u>	Sec <u>1.9</u>	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <u>1</u>
LTL <input checked="" type="checkbox"/>	Twp <u>15.9</u>	R <u>7.7W</u>	Sec <u>1.9</u>	QQQ <input type="checkbox"/>	QQ <input checked="" type="checkbox"/>	Q <u>7</u>
LTL <input checked="" type="checkbox"/>	Twp <u>15.9</u>	R <u>7.8W</u>	Sec <u>2.4</u>	QQQ <input type="checkbox"/>	QQ <input checked="" type="checkbox"/>	Q <u>6</u>
LTL <input type="checkbox"/>	Twp <u>15.9</u>	R <u>7.8W</u>	Sec <u>2.5</u>	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <u>5</u>

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

City _____

Street # _____

Street # _____

Street Name _____

Street Name _____

of Features 0.1

FEATURE DATA

0.1 Feature #

1.9.3.6 Const Date

☐ Feature Date

1.3 Feature Type

0.6 Context

7 Condition

1 Significance

9 Plan Shape

PORCH

☐ Original

☐ Addition/Altered

☐ Removed/None

BUILDING MATERIALS

0.9 Structure System

☐ Primary Exterior Finish

☐ Secondary Exterior Finish

☐ Main Entrance

☐ Ethnic

☐ Style

0.4.1.8.8.9 Fieldwork Date

☐ Builder

☐ Engineer

☐ Designer Architect

_____LINEAR SHAPE_____Other Information

_____Soil Association_____Ecozone_____Area Signf_____MS Number

_____Soil Association_____Ecozone_____Area Signf_____MS Number

☐ CR Type ☐ Verified Site ☐ Non-Site ☐ E C F ☐ T F

☐ State Registry

☐ National Register

Coder MEM/RTI

Date Coded 7.11.89

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89JCS01SITS Number 32MHFeature No. 1Name in Name Block Lower Souris Dam 320

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<u>n/a</u>	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<u>n/a</u>	<input type="checkbox"/> Other	<u>1</u> Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<u>n/a</u>		<u>n/a</u>	<u>newspapers</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<u>n/a</u>				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 320 is the southern-most, or farthest upstream, of the five major dams at the J. Clark Salyer refuge and is located in McHenry County (E 1/2 Sec. 17, SE 1/4 Sec. 18, and N 1/2 and SW 1/4 Sec. 19, T159N, R77W; and SE 1/4 Sec. 24 and NE 1/4 Sec. 25, T159N, R78W). The dam is about 2-1/2 miles southeast, or upstream, from the refuge headquarter.

Dam 320 consists of a homogenous earthfill embankment, an emergency spillway, and outlet works. The earthfill embankment is oriented along an northeast/southwest axis, and has a height of about 13 feet, a crest width of 16 feet, and a crest elevation of 1428.7 feet. The total length of embankment, including the spillway, is 15,575 feet. The upstream side of the embankment was constructed with a slope 4:1 along its upper and lower sections; and slope of 12:1 along its middle section. The downstream side of the embankment has a slope of 4:1. The surface of the embankment is vegetated with grass except for the lower 2/3 of the upstream face which is protected by rock riprap. The original plans for the dam called for the top soils at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.¹ (see continuation form, page 2).

SIGNIFICANCEx SIGNIFICANT☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<u>x</u> Rep. of type, period, method of construction	<u>x</u> Associated with devel. of locality	<input type="checkbox"/> Not High Style
<input type="checkbox"/> Other	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other

JUSTIFICATION OF SIGNIFICANCE:

Dam 320 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway weir is visually the most evident element of this design type.

Recorded by: Mary E. McCormick, RTI, Butte, MT

Date: July 11, 1989

NDCRS ARCHITECTURAL SITE FORMS

Field Code RTI89JCS01

Page 3

SITS Number 32MH

ACCESS: From Upham take Highway 14 north about 1/8 of a mile; turn east onto gravel road and proceed east 3-1/2 miles and then north east about 2-1/2 miles to the east end of Dam 320.

DESCRIPTION OF SITE: Dam 320 is located on the J. Clark Salyer National Wildlife Refuge which is situated along a winding 75-mile stretch of the Souris River in Bottineau and McHenry counties in north-central North Dakota. Originally established in the mid-1930s as the Lower Souris National Wildlife Refuge, this refuge was renamed in 1967 in honor of J. Clark Salyer, II, the chief of the national wildlife refuge program from 1934-1961. The 58,700-acre refuge is largely comprised of native prairie lands, with some wooded bottom lands, and aspen and brush-covered sandhills, as well as over 21,000 acres of restored river ponds, marshes, and wet meadows. Water developments in the refuge were established, and are maintained, by a network of five major dams (nos. 320, 326, 332, 341, and 357) as well as other diversion structures including two small masonry dams, and several dikes, levees and channels. The five major dams are apart spaced so that they extend nearly the entire length of the refuge from near Upham, North Dakota, north to the United States-Canada border. Dam 320 retains very good integrity and is in excellent condition.

FEATURES: Feature 1: Dam 320

SITE AREA: 202,350 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S Fish and Wildlife Service, J. Clark Salyer National Wildlife Refuge Headquarters, Upham ND, (701) 768-2548

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salyer National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downstream reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salyer refuge); and the about (see continuation form, page 5)

Recorded by Mary E. McCormick, RTI

Date July 1989

Item:

FEATURE DESCRIPTION AND STATEMENT OF INTEGRITY (page 2)

The emergency spillway is an uncontrolled weir located along the crest of the embankment, about 4200 feet southwest from the right dam abutment. When it was originally constructed, the spillway consisted of 700-foot long stone masonry wall with flared stone masonry wing walls and a stone masonry apron below its downstream side. Since then, most likely in the late 1940s, the spillway wall was modified by the addition of new concrete wing walls, a concrete cap, and concrete buttresses which are spaced 12 feet on center along its downstream face.² The current crest elevation of the weir is 1425.8 feet.

There are two outlet structures for the dam. The main outlet works is located near the right abutment of the dam and spans the main river channel. It consists of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four, 17-foot long by 13-foot high walls (two end walls and two piers), which serve as supports for the three radial gates. The downstream wing walls for the concrete structure are constructed of interlocking, corrugated sheet piling, and the upstream wing walls are concrete.

The radial gates each consist of a corrugate steel face (16 feet wide by 10 feet high) with channel section supports and angle section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates, however, the concrete walls between the gates extend downstream from them and serve as outlet structures. The outlet discharges into a stilling basin consisting of a concrete apron and plunge pool.

The radial gates are operated by manual hoists and the hoist control for each respective gate is mounted on top of an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway which lies along the structure's upstream edge. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck and an angle section rail. Along its downstream side, the concrete structure also supports a narrow walkway consisting of planks resting on two channel section stringers.

The other outlet works for the dam is located near its southwest abutment and consists of a stop log structure and a conduit. Located on the upstream side of the embankment, the stop log structure has a reinforced concrete bulkhead. Interior walls of the structure hold 5-foot 3-inch long stop logs which can be adjusted manually to control the structure's top elevation. A 48-inch steel pipe extends from the stop log structure about 30 feet under the dam to downstream side of the embankment where it empties into a low marshy area.

Overall, this dam retains very good integrity. Although the spillway has been altered, its basic form is still evident and its function within the operation remains the same. The dam embankment and outlet works are unchanged and exhibit their historical integrity in all aspects.

Field Code: RTI89JCS01

Continuation Form

Site Number 32MH

Item:

STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 320 on the J. Clark Salyer refuge was constructed in 1935-36, by the Meggary Brothers of Bismark.³

The overall integrity of Dam 320 remains very good. Although the spillway has been altered, its basic form is intact and its function within the operation of the dam is unchanged. Both the dam embankment and outlet works retain excellent integrity in all aspects.

Dam 320 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

Dam 320 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

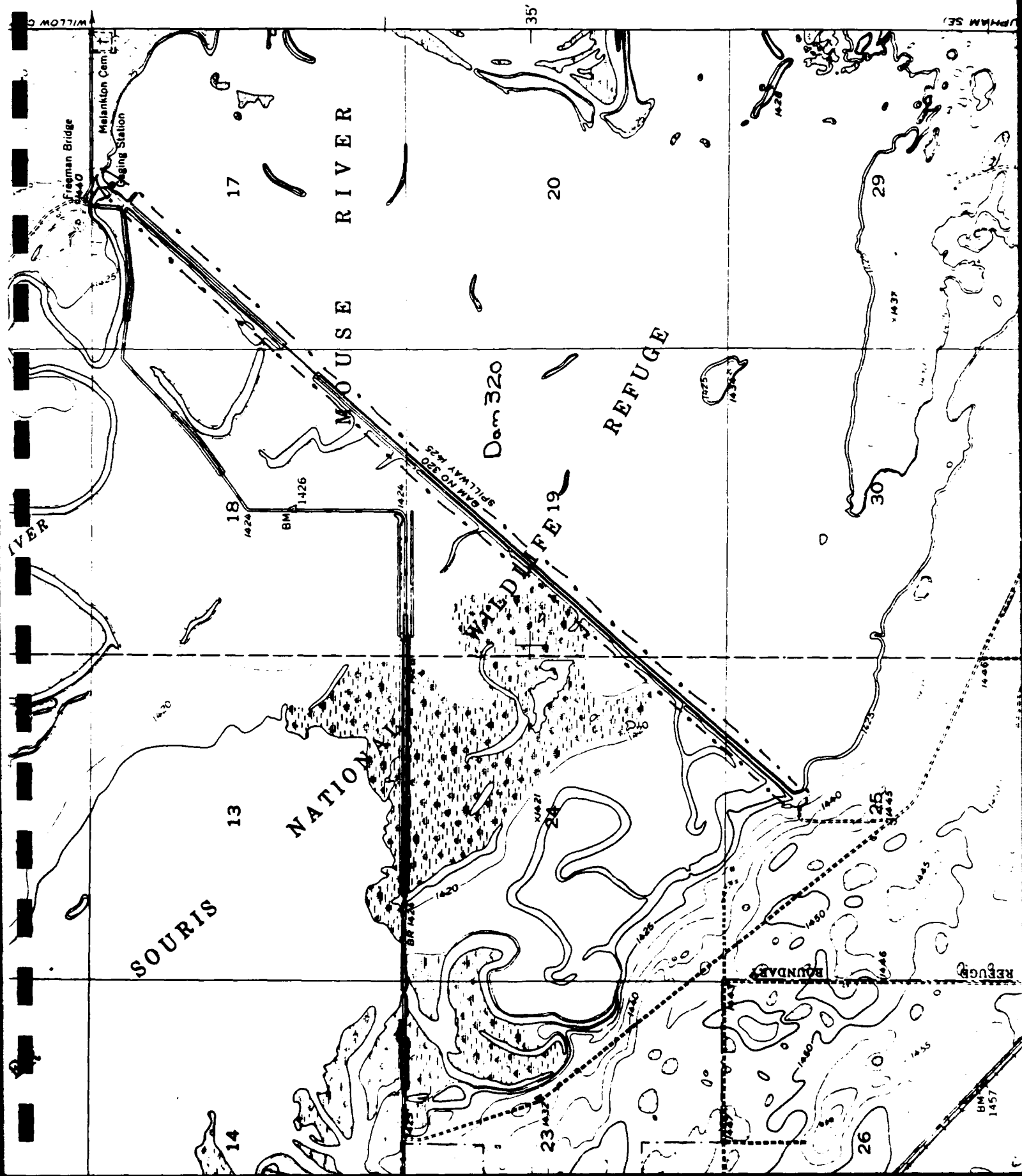
Dam 320 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

ENDNOTES

1. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 320, J. Clark Salyer National Wildlife Refuge, McHenry County, North Dakota, Federal Inventory Number ND 003329," June 1984, p. 10, report prepared for the U.S. Fish and Wildlife Service, copy on file at the Headquarter Offices of the J. Clark Salyer National Wildlife Refuge, North Dakota.

2. In 1946, drawings were prepared for repairs to the stone masonry weir of the spillway for Lower Souris (J. Clark Salyer) Dam 357. These repairs called for the same modifications as those exhibited by this structure, ie. new concrete cap, and concrete buttresses. Therefore, it is assumed that the spillway for both of these dams, as well as the three other dams at this refuge, were altered around this same time, see: drawing M-No. DAK. 3-30, "Lower Souris: Improvements to Dam 357 Spillway," July 1946, included as attachment C-11 to, Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam #357, J. Clark Salyer National Wildlife Refuge, Bottineau County, North Dakota, Federal Inventory Number ND 00325," June 1984, report prepared for the U.S. Fish and Wildlife Service, copy on file at Headquarter Offices of the J. Clark Salyer National Wildlife Refuge, North Dakota.

3. Mouse River Farmers Press, 4 April 1935, p. 1.



NUCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 M.H. 0.0.4.9
State County Site Number

Field Code R.T. 1.8.9 J.C.S. 0.2 Site Name LOWER SOURIS DAM 326
Field Code _____ Site Name _____

Map Quad _____
Map Quad _____

LTL <input checked="" type="checkbox"/>	Twp <u>1E3</u>	R <u>7E.W</u>	Sec <u>03</u>	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <u>5</u>
LTL <input checked="" type="checkbox"/>	Twp <u>1E9</u>	R <u>7E.W</u>	Sec <u>03</u>	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <u>7</u>
LTL <input checked="" type="checkbox"/>	Twp <u>1G0</u>	R <u>7E.W</u>	Sec <u>34</u>	QQQ <input type="checkbox"/>	QQ <u>2</u>	Q <u>6</u>
LTL <input checked="" type="checkbox"/>	Twp <u>1G2</u>	R <u>7E.W</u>	Sec <u>35</u>	QQQ <input type="checkbox"/>	QQ <u>8</u>	Q <u>7</u>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <input type="checkbox"/>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <input type="checkbox"/>

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

City _____

Street # _____

Street # _____

Street Name _____

Street Name _____

of Features 0.1

FEATURE DATA

0.1 Feature #

1.3 Feature Type

7 Condition

1.9.3.0 Const Date

0.6 Context

1 Significance

☐ Feature Date

9 Plan Shape

PORCH

BUILDING MATERIALS

☐ Original

0.8 Structure System

☐ Main Entrance

☐ Addition/Altered

☐ Primary Exterior Finish

☐ Removed/None

☐ Secondary Exterior Finish

☐ Ethnic

☐ Builder

☐ Style

☐ Engineer

0.4.1.8.4.9 Fieldwork Date

☐ Designer Architect

_____LINEAR SHAPE_____Other Information

_____Soil Association_____Ecozone_____Area Signf_____MS Number

_____Soil Association_____Ecozone_____Area Signf_____MS Number

☐ CR Type

☐ Verified Site

☐ Non-Site

☐ E C F

☐ T F

☐ State Registry

☐ National Register

Coder MEW/RTI

Date Coded 7-1-75

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89JCS02SITS Number 32MH/BUFeature No. 1Name in Name Block Lower Souris Dam 326

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<u>n/a</u>	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<u>n/a</u>	<input type="checkbox"/> Other	<u>1</u> Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<u>n/a</u>		<u>n/a</u>	<u>newspaper</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<u>n/a</u>				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 326 is situated about 3-1/2 miles northwest, or downstream, of Dam 320 and is partially located in both McHenry County (Sec. 3, T159N, R78W) and Bottineau County (SE 1/4 Sec. 34 and SW 1/4 Sec. 35, T160N, R78W). The refuge headquarters are situated less than 1/4 mile southeast of the dam's west end.

Dam 326 is oriented along a northeast/southwest axis and consists of an homogeneous earthfill embankment, an emergency spillway, and outlet works. The earthfill embankment has a crest width between 12 and 18 feet, and including the spillway, is 9,435 feet long. The original plans for the dam reportedly called for the top soils at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.¹ In the late 1940s, flood water topped the embankment and in 1950 three additional feet of soil was laid along the crest.² The current height of the embankment is 13 feet and its crest elevation is 1427.4 feet. The upstream slope of the embankment varies between 4:1 at the base, 12:1 at the middle section, and 5:1 at the upper section. The downstream slope of the embankment is 4:1. The embankment is vegetated with grass except at west end of the downstream slope which has rock riprap for about 600 to 700 feet (see continuation form, page 4).

SIGNIFICANCEx SIGNIFICANT☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<u>x</u> Rep. of type, period, method of construction	<u>x</u> Associated with devel. of locality	<input type="checkbox"/> Not High Style
<input type="checkbox"/> Other	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other

JUSTIFICATION OF SIGNIFICANCE:

Dam 326 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway weir is visually the most evident element of this design type.

Recorded by: Mary E. McCormick, RTI, Butte, MT

Date: July 11, 1989

NDCRS ARCHITECTURAL SITE FORMS

Field Code RT189JCS02

Page 3

SITS Number 32MH/BU

ACCESS: From Kramer take Highway 14 south about 3-1/4 miles to the east end of Dam 326.

DESCRIPTION OF SITE: Dam 326 is located on the J. Clark Salyer National Wildlife Refuge which is situated along a winding 75-mile stretch of the Souris River in Bottineau and McHenry counties in north-central North Dakota. Originally established in the mid-1930s as the Lower Souris National Wildlife Refuge, this refuge was renamed in 1967 in honor of J. Clark Salyer, II, the chief of the national wildlife refuge program from 1934-1961. The 58,700-acre refuge is largely comprised of native prairie lands, with some wooded bottom lands, and aspen and brush-covered sandhills, as well as over 21,000 acres of restored river ponds, marshes, and wet meadows. Water developments in the refuge were established, and are maintained, by a network of five major dams (nos. 320, 326, 332, 341, and 357) as well as other diversion structures including two small masonry dams, and several dikes, levees and channels. The five major dams are apart spaced so that they extend nearly the entire length of the refuge from near Upham, North Dakota, north to the United States-Canada border. Dam 326 retains very good integrity and is in excellent condition.

FEATURES: Feature 1: Dam 326

SITE AREA: 141,645 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S. Fish and Wildlife Service, J. Clark Salyer National Wildlife Refuge Headquarters, Upham ND, (701) 768-2548

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salyer National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downstream reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salyer refuge); and the about (see continuation form, page 5)

Recorded by Mary E. McCormick, RTI

Date July 1989

Item:

FEATURE DESCRIPTION AND STATEMENT OF INTEGRITY (page 2)

The emergency spillway is an uncontrolled weir located along the crest of the embankment, about 4650 feet northeast of the left abutment of the dam. The spillway was originally constructed as a 700-foot long stone masonry wall with flared stone masonry wing walls and a stone masonry apron below the wall's downstream edge. Since then, mostly likely in the late 1940s, the stone masonry wall was modified to its current configuration by the addition of a concrete cap, and concrete buttress which are spaced about 12 feet on center along its downstream face.³ Only the tops of the concrete cap and buttresses are currently visible. The crest elevation of the weir is 1421.1 feet.

The outlet works span the natural river channel and are located about 3600 feet southwest of the northeast abutment of the dam. The outlet works consist of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four, 15-foot long by 10-foot high walls (two end walls and two piers), which serve as supports to the radial gates. The downstream wing walls of the concrete structure are constructed of interlocking, corrugated sheet piling and the upstream wing walls are concrete.

The radial gates each consist of a corrugated steel face (16 feet wide by 7 feet high) with channel section supports and angle section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates, however, the concrete walls between the gates extend downstream from them and serve as outlet structures. The outlets discharge into a stilling basin which consists of a plunge pool with a concrete apron.

The radial gates are operated by manual hoists and the hoist control for each respective gate is mounted on top an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway which lies along the structure's upstream edge. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck with angle-section railing. Along its downstream side, the concrete structure also supports a concrete beam walkway which is protected by an angle section rail. In 1950, the original height of the concrete structure was raised 3 feet by concrete caps which were added to the top of each of the end walls and piers, as well as both of the upstream wing walls. At this same time, the gate hoist controls, and the upstream and downstream walkways were removed and re-installed in their current locations.⁴

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic form of the embankment, spillway and outlet works is intact, and their overall function within the operation of the dam is unchanged.

Item:

STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 326 on the J. Clark Salyer refuge was constructed in 1935-36, by the Meggary Brothers of Bismark.⁵

Regardless of alterations to all three of its major components, the integrity of Dam 326 remains good. The basic form of the embankment, spillway and outlet works are intact, and their overall function within the operation of the dam is unchanged.

Dam 326 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

Dam 326 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

Dam 326 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

ENDNOTES

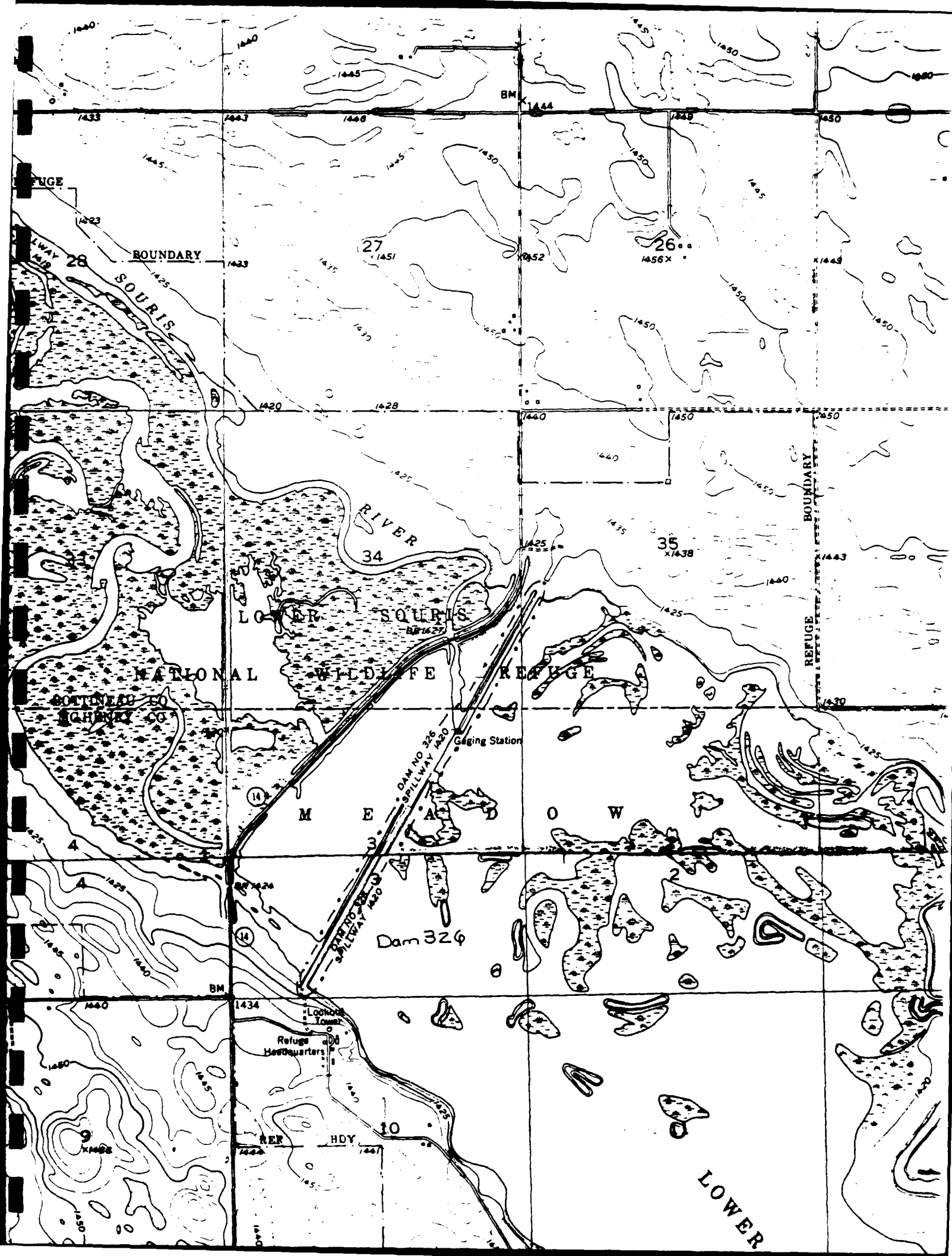
1. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 326, J. Clark Salyer National Wildlife Refuge, McHenry County, North Dakota, Federal Inventory Number ND 003328," June 1984, p. 10, report prepared for the U.S. Fish and Wildlife Service, copy on file at the Headquarter Offices of the J. Clark Salyer National Wildlife Refuge, North Dakota.

2. Ibid., p. 14.

3. In 1946, drawings were prepared for repairs to the stone masonry weir of the spillway for Lower Souris (J. Clark Salyer) Dam 357. These repairs called for the same modifications as those exhibited by this structure, ie. new concrete cap, and concrete buttresses. Therefore, it is assumed that the spillway for both of these dams, as well as the three other dams at this refuge, were altered around this same time, see: drawing M-No. DAK. 3-30, "Lower Souris: Improvements to Dam 357 Spillway," July 1946, included as attachment C-11 to, Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam #357, J. Clark Salyer National Wildlife Refuge, Bottineau County, North Dakota, Federal Inventory Number ND 00325," June 1984, report prepared for the U.S. Fish and Wildlife Service, copy on file at Headquarter Offices of the J. Clark Salyer National Wildlife Refuge, North Dakota.

4. Details of alterations to the outlet works are provided by drawing M-No. Dak. 3-321, "Lower Souris: Raising Radial Gate Control Structures on Dams 326, 332, 341, & 357," Sept. 1949, revised July 1950, included as attachment C-12 to, Marshall and Clayton, "Inspection Report, Dam 357."

5. Mouse River Farmers Press, 4 April 1935, p. 1.



NDCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 B.U. 0.0.6
State County Site Number

Field Code RT189JCS03 Site Name LOWER SOUTHERS DAM 332
Field Code _____ Site Name _____

Map Quad _____
Map Quad _____

LTL <u>0</u>	Twp <u>1600</u>	R <u>73W</u>	Sec <u>19</u>	QQQ <u>1</u>	QQ <u>1</u>	Q <u>1</u>
LTL <u>1</u>	Twp <u>1600</u>	R <u>73W</u>	Sec <u>20</u>	QQQ <u>1</u>	QQ <u>2</u>	Q <u>2</u>
LTL <u> </u>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>
LTL <u> </u>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>
LTL <u> </u>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>
LTL <u> </u>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>

1. N
2. E
3. S
4. W
5. NE
6. SE
7. SW
8. NW
9. C

City _____

Street # _____

Street # _____

Street Name _____

Street Name _____

of Features 01

FEATURE DATA

01 Feature #
1936 Const Date
_____ Feature Date

13 Feature Type
06 Context

7 Condition
1 Significance
9 Plan Shape

PORCH

_____ Original
_____ Addition/Altered
_____ Removed/None

BUILDING MATERIALS

08 Structure System
_____ Primary Exterior Finish
_____ Secondary Exterior Finish

_____ Main Entrance

_____ Ethnic
_____ Style

1 Builder
_____ Engineer
_____ Designer Architect

041889 Fieldwork Date

_____ LINEAR SHAPE Other Information

_____ Soil Association	_____ Ecozone	_____ Area Signf	_____ MS Number
_____ Soil Association	_____ Ecozone	_____ Area Signf	_____ MS Number
_____ CR Type	_____ Verified Site	_____ Non-Site	_____ E C F _____ T F
_____ State Registry	_____ National Register		

Coder MEM JPT

Date Coded 7-11-89

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89JCS03

SITS Number 32BU

Feature No. 1

Name in Name Block Lower Souris Dam 332

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<u>n/a</u>	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<u>n/a</u>	<input type="checkbox"/> Other	<u>1</u> Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<u>n/a</u>		<u>n/a</u>	<u>newspaper</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<u>n/a</u>				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 332 is located about 3-1/2 miles northwest, or downstream, of the refuge headquarters near Dam 326 and is situated in Bottineau County (N 1/2 Sec. 19 and NW 1/4 Sec. 20, T160N, R78W).

Dam 332 is a homogenous earthfill embankment with an emergency spillway and outlet works. The earthfill embankment is oriented along an northeast/southwest axis, and has a height of about 15 feet, a crest width of 12 feet, and a crest elevation of 1422 feet. The total length of embankment, including the spillway, is 4954 feet. The upstream side of the embankment has a slope 5:1 along its upper section and a slope of 10:1 along its lower section. The downstream side of the embankment has a slope of 4:1. The surface of the embankment is vegetated with grass. The original plans for the dam reportedly called for the top soils at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.¹ (see continuation form, page 4).

SIGNIFICANCE

x SIGNIFICANT

☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<u>x</u> Rep. of type, period, method of construction	<u>x</u> Associated with devel. of locality	<input type="checkbox"/> Not High Style
<input type="checkbox"/> Other	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other

JUSTIFICATION OF SIGNIFICANCE:

Dam 332 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway weir is visually the most evident element of this design type.

Recorded by: Mary E. McCormick, RTI, Butte, MT

Date: July 11, 1989

NDCRS ARCHITECTURAL SITE FORMS

Field Code RTI89JCS03

Page 3

SITS Number 32BU

ACCESS: From Kramer take the county highway west 2 miles, south 1 mile, and then west 3/4 a mile; turn south onto two track road and continue about 1/4 of a mile south and west to the east end of Dam 332.

DESCRIPTION OF SITE: Dam 332 is located on the J. Clark Salyer National Wildlife Refuge which is situated along a winding 75-mile stretch of the Souris River in Bottineau and McHenry counties in north-central North Dakota. Originally established in the mid-1930s as the Lower Souris National Wildlife Refuge, this refuge was renamed in 1967 in honor of J. Clark Salyer, II, the chief of the national wildlife refuge program from 1934-1961. The 58,700-acre refuge is largely comprised of native prairie lands, with some wooded bottom lands, and aspen and brush-covered sandhills, as well as over 21,000 acres of restored river ponds, marshes, and wet meadows. Water developments in the refuge were established, and are maintained, by a network of five major dams (nos. 320, 326, 332, 341, and 357) as well as other diversion structures including two small masonry dams, and several dikes, levees and channels. The five major dams are apart spaced so that they extend nearly the entire length of the refuge from near Upham, North Dakota, north to the United States-Canada border. Dam 332 retains historical integrity and is in excellent condition.

FEATURES: Feature 1: Dam 332

SITE AREA: 56,658 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S Fish and Wildlife Service, J. Clark Salyer National Wildlife Refuge Headquarters, Upham ND, (701) 768-2548

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salyer National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downstream reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salyer refuge); and the about (see continuation form, page 5)

Recorded by Mary E. McCormick, RTI

Date July 1989

Field Code: RTI89JCS03

Continuation Form

Site Number 32BU

Item:

FEATURE DESCRIPTION AND STATEMENT OF INTEGRITY (page 2)

The emergency spillway is an uncontrolled weir located along the crest of the embankment, about 2700 feet southeast from the left abutment. When it was originally constructed, the spillway was a 700-foot stone masonry wall with flared, stone masonry wing walls and a stone masonry apron below its downstream edge. Since then, most likely in the late 1940s, the weir was modified by the addition of a concrete cap, and concrete buttresses which are spaced about 12 feet on center along the wall's downstream face.² The current crest elevation of the weir is 1419.1 feet.

The outlet works are located at the southwest end of the dam and consist of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four 16-foot long by 15-foot high walls (two end walls and two piers) which serve to support the radial gates. The downstream wing walls for the concrete structure are constructed of interlocking, corrugated sheet piling and upstream wing walls are concrete.

The radial gates each consist of a corrugate steel face (16 feet wide by 9 feet high) with channel section supports and angle section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates, however, the concrete walls between the gates extend downstream from them and serve as outlet structures. The outlet discharges into a stilling basin which consists of a plunge pool with a concrete apron.

The radial gates are operated by manual hoists and the hoist control for each respective gate is mounted on top of an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway which lies along the structure's upstream edge. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck and an angle section rail. Along its downstream side, the concrete structure also supports a concrete beam walkway which is protected by angle-section railing. In 1949, the original height of the concrete structure was raised 3 feet by concrete caps which were added to the top of each of the end walls and piers, as well as both of the upstream wing walls. At this same time, the gate hoist controls, and the upstream and downstream walkways were removed and re-installed in their current locations.³

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic form of the embankment, spillway and outlet works is intact, and their overall function within the operation of the dam is unchanged.

Field Code: RTI89JCS03

Continuation Form

Site Number 32BU

Item:

STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 332 on the J. Clark Salyer refuge was constructed in 1935-36, by the Meggary Brothers of Bismark.⁴

Regardless of alterations to all three of its major components, the integrity of Dam 332 remains good. The basic form of the embankment, spillway and outlet works are intact, and their overall function within the operation of the dam is unchanged.

Dam 332 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

Dam 332 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

Dam 332 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

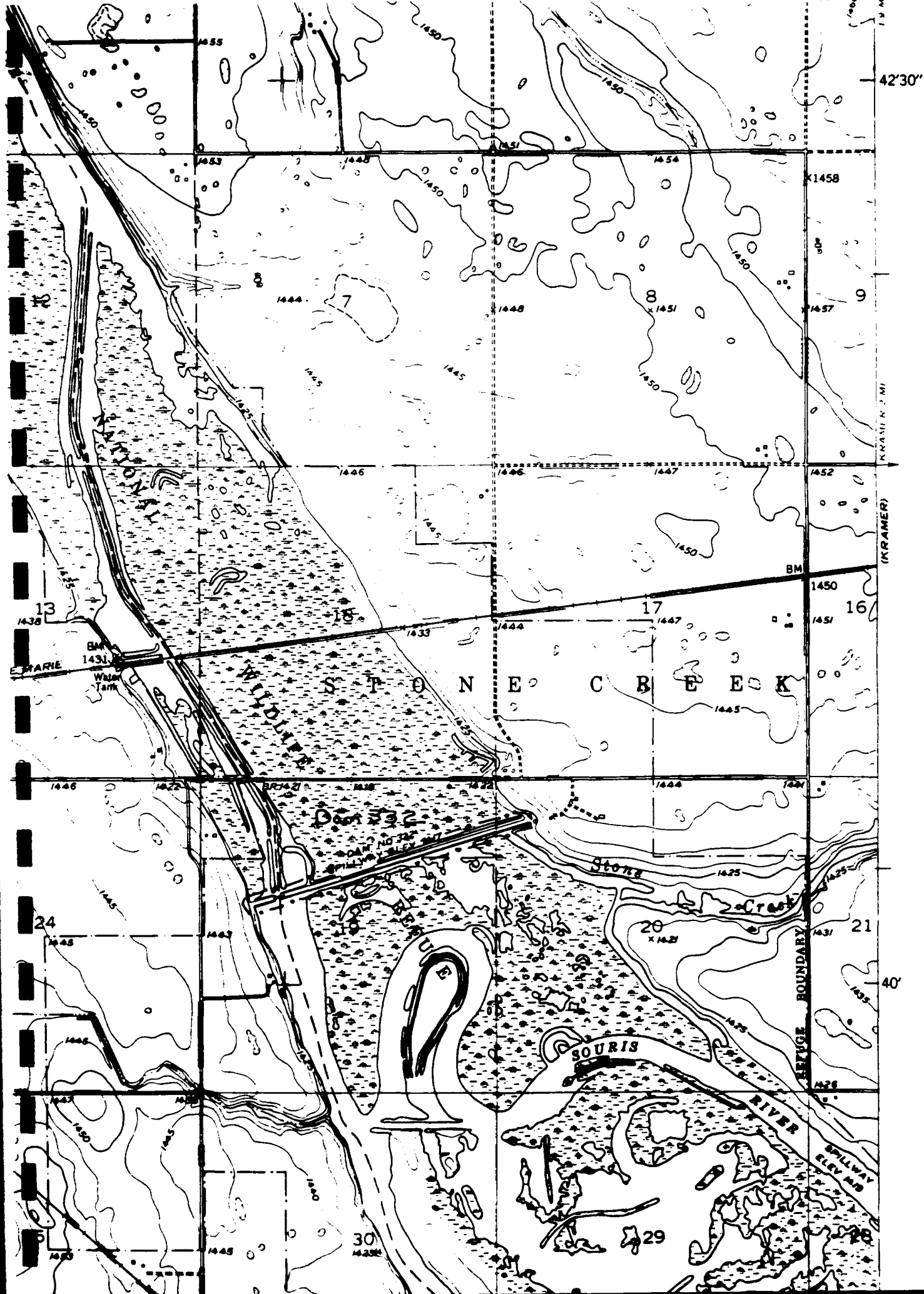
ENDNOTES

1. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 332, J. Clark Salyer National Wildlife Refuge, McHenry County, North Dakota, Federal Inventory Number ND 003327," June 1984, p. 10, report prepared for the U.S. Fish and Wildlife Service, copy on file at the Headquarter Offices for the J. Clark Salyer National Wildlife Refuge, North Dakota.

2. see drawing M-No. DAK. 3-30, "Lower Souris: Improvements to Dam 357 Spillway,: July 1946, included as attachment C-11 to, Marshall Faax and Terry Clayton, "Inspection Report, J. Clark Salyer DAM "357, J. Clark Salyer National Wildlife Refuge, Bottineau County, North Dakota, Federal Inventory Number ND 00325," June 1964, report prepared for the U.S. Fish and Wildlife Service, copy on file at Headquarter Offices of the J. Clark Salyer National Wildlife Refuge, North Dakota.

3. Details of alterations to the outlet works are provided by drawing M-No. Dak, 3-321, "Lower Souris: Raising Radial Gate Control Structures on Dams 326, 332, 341, & 357," Sept. 1949, revised July 1950, included as attachment C-12 to Marshall and Clayton, "Inspection Report, Dam 357."

4. Mouse River Farmers Press, 4 April 1935, p. 1.



NDCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 BU 0.0.0.7
State County Site Number

Field Code BT.1.8.9.J.C.S.0.4 Site Name LOWER SOURIS DAM 3.4.1
Field Code _____ Site Name _____

Map Quad _____ Land 10 S.E.
Map Quad _____ Land 10 S.W.

LTL <input type="checkbox"/>	Twp <u>1.0.1</u>	R <u>7.9.W</u>	Sec <u>1.4</u>	QQQ <input type="checkbox"/>	QQ <u>1</u>	Q <u>1</u>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <input type="checkbox"/>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <input type="checkbox"/>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <input type="checkbox"/>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <input type="checkbox"/>
LTL <input type="checkbox"/>	Twp _____	R _____	Sec _____	QQQ <input type="checkbox"/>	QQ <input type="checkbox"/>	Q <input type="checkbox"/>

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

City _____

Street # _____

Street # _____

Street Name _____

Street Name _____

of Features 0.1

FEATURE DATA

0.1 Feature #

1.9.3.6 Const Date

☐ Feature Date

1.3 Feature Type

0.6 Context

7 Condition

1 Significance

9 Plan Shape

PORCH

☐ Original

☐ Addition/Altered

☐ Removed/None

BUILDING MATERIALS

0.8 Structure System

☐ Primary Exterior Finish

☐ Secondary Exterior Finish

☐ Main Entrance

☐ Ethnic

☐ Style

0.4.1.7.8.9 Fieldwork Date

☐ Builder

☐ Engineer

☐ Designer Architect

_____LINEAR SHAPE_____Other Information

<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<input type="checkbox"/> MS Number
<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<input type="checkbox"/> MS Number
<input type="checkbox"/> CR Type	<input type="checkbox"/> Verified Site	<input type="checkbox"/> Non-Site	<input type="checkbox"/> E C F <input type="checkbox"/> T F
<input type="checkbox"/> State Registry	<input type="checkbox"/> National Register		

Coder BT/MEM

Date Coded 7.11.89

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89JCS04SITS Number 32BUFeature No. 1Name in Name Block Lower Souris Dam 341

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<u>n/a</u>	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<u>n/a</u>	<input type="checkbox"/> Other	<input type="checkbox"/> 1 Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<u>n/a</u>		<u>n/a</u>	<u>newspaper</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<u>n/a</u>				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 341 is located about nine miles northwest, or downstream, from the refuge headquarter near Dam 326, and is situated in Bottineau County (N 1/2 Sec. 14, T161N, R79W).

Dam 341 consists of an homogeneous earthfill embankment, an emergency spillway, and outlet works. The earthfill embankment has a crest width between 8 and 10 feet, and including the spillway, is 3293 feet long. The original plans for the dam reportedly called for the top soils at the site to be plowed before construction of the embankment. Earthfill for the embankment was apparently excavated from a nearby location.¹ In the late 1940s, flood water topped the embankment and in 1950 three additional feet of soil was laid along the crest.² The current height of the embankment is 15 feet and its crest elevation is 1422.1 feet. The upstream slope of the embankment varies between 6:1 along its upper section, and 10:1 along its lower section. The downstream slope of the embankment is 4:1. The embankment is vegetated with grass (see continuation form, page 4).

SIGNIFICANCEx SIGNIFICANT☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<u>x</u> Rep. of type, period, method of construction	<u>x</u> Associated with devel. of locality	<input type="checkbox"/> Not High Style
<input type="checkbox"/> Other	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other

JUSTIFICATION OF SIGNIFICANCE:

Dam 341 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway weir is visually the most evident element of this design type.

Recorded by: Fredric L. Quivik, RTI, Butte, MT

Date: September 7, 1988

NDCRS ARCHITECTURAL SITE FORMS

Field Code RTI89JCS04

Page 3

SITS Number 32BU

ACCESS: From Kramer take county highway 14 north 6 miles; turn west onto gravel road and continue about 6-1/8 miles to the east end of Dam 341.

DESCRIPTION OF SITE: Dam 341 is located on the J. Clark Salyer National Wildlife Refuge which is situated along a winding 75-mile stretch of the Souris River in Bottineau and McHenry counties in north-central North Dakota. Originally established in the mid-1930s as the Lower Souris National Wildlife Refuge, this refuge was renamed in 1967 in honor of J. Clark Salyer, II, the chief of the national wildlife refuge program from 1934-1961. The 58,700-acre refuge is largely comprised of native prairie lands, with some wooded bottom lands, and aspen and brush-covered sandhills, as well as over 21,000 acres of restored river ponds, marshes, and wet meadows. Water developments in the refuge were established, and are maintained, by a network of five major dams (nos. 320, 326, 332, 341, and 357) as well as other diversion structures including two small masonry dams, and several dikes, levees and channels. The five major dams are apart spaced so that they extend nearly the entire length of the refuge from near Upham, North Dakota, north to the United States-Canada border. Dam 341 retains historical integrity and is in excellent condition.

FEATURES: Feature 1: Dam 341

SITE AREA: 40,470 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S Fish and Wildlife Service, J. Clark Salyer National Wildlife Refuge Headquarters, Upham ND, (701) 768-2548

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salyer National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downst eam reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salyer refuge); and the about (see continuation form, page 5)

Recorded by Mary E. McCormick, RTI

Date July 1989

Field Code: RT189JCS04

Continuation Form

Site Number 32BU

Item:

FEATURE DESCRIPTION AND STATEMENT OF INTEGRITY (page 2)

The emergency spillway is an uncontrolled weir at located along the embankment crest at the west end of the dam. When it was originally constructed, the spillway consisted of 700-foot long stone masonry wall with stone masonry wing walls and a stone masonry apron below the its downstream edge. Since then, most likely in the late 1940s, the stone masonry wall was modified by the addition of a concrete cap, and concrete buttress which are spaced 12 feet on center along its downstream side.³ The current crest elevation of the weir is 1421.1 feet.

The outlet works span the main river channel and are located about 1300 feet east of the left abutment of the dam. The outlet works consist of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four, 16-foot long by 15-foot high walls (two end walls and two piers), which serve to support the radial gates. The downstream wing walls of the concrete structure are constructed of interlocking, corrugated sheet piling and the upstream wing walls are concrete.

The radial gates each consist of a corrugated steel face (16 feet wide by 9 feet high) with channel section supports and angle section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates, however, the concrete walls between the gates extend downstream from them and serve as outlet structures. The outlet discharges into a stilling basin which consists of a plunge pool with a concrete apron.

The radial gates are operated by manual hoists and the hoist control for each respective gate is mounted on top an adjacent concrete wall, pier. Access to the hoist controls is provided by a cantilevered walkway which lies along the structure's upstream edge. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck and an angle section rail. Along its downstream side, the concrete structure also supports a concrete beam walkway which is protected by an angle section rail. In 1949, the original height of the concrete structure was raised 3 feet by concrete caps which were added to the top of each of the end walls and piers, as well as both of the upstream wing walls. At the same time, the gate hoist controls, and the upstream and downstream walkways were removed and re-installed in their current locations.⁴

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic form of the embankment, spillway and outlet works is intact, and their overall function within the operation of the dam is unchanged.

Field Code: RTI89JCS04

Continuation Form

Site Number 32BU

Item:

STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 341 on the J. Clark Salyer refuge was constructed in 1935-36, by the Meggary Brothers of Bismark.⁵

Regardless of alterations to all three of its major components, the integrity of Dam 341 remains good. The basic form of the embankment, spillway and outlet works are intact, and their overall function within the operation of the dam is unchanged.

Dam 341 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

Dam 341 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effected in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

Dam 341 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

ENDNOTES

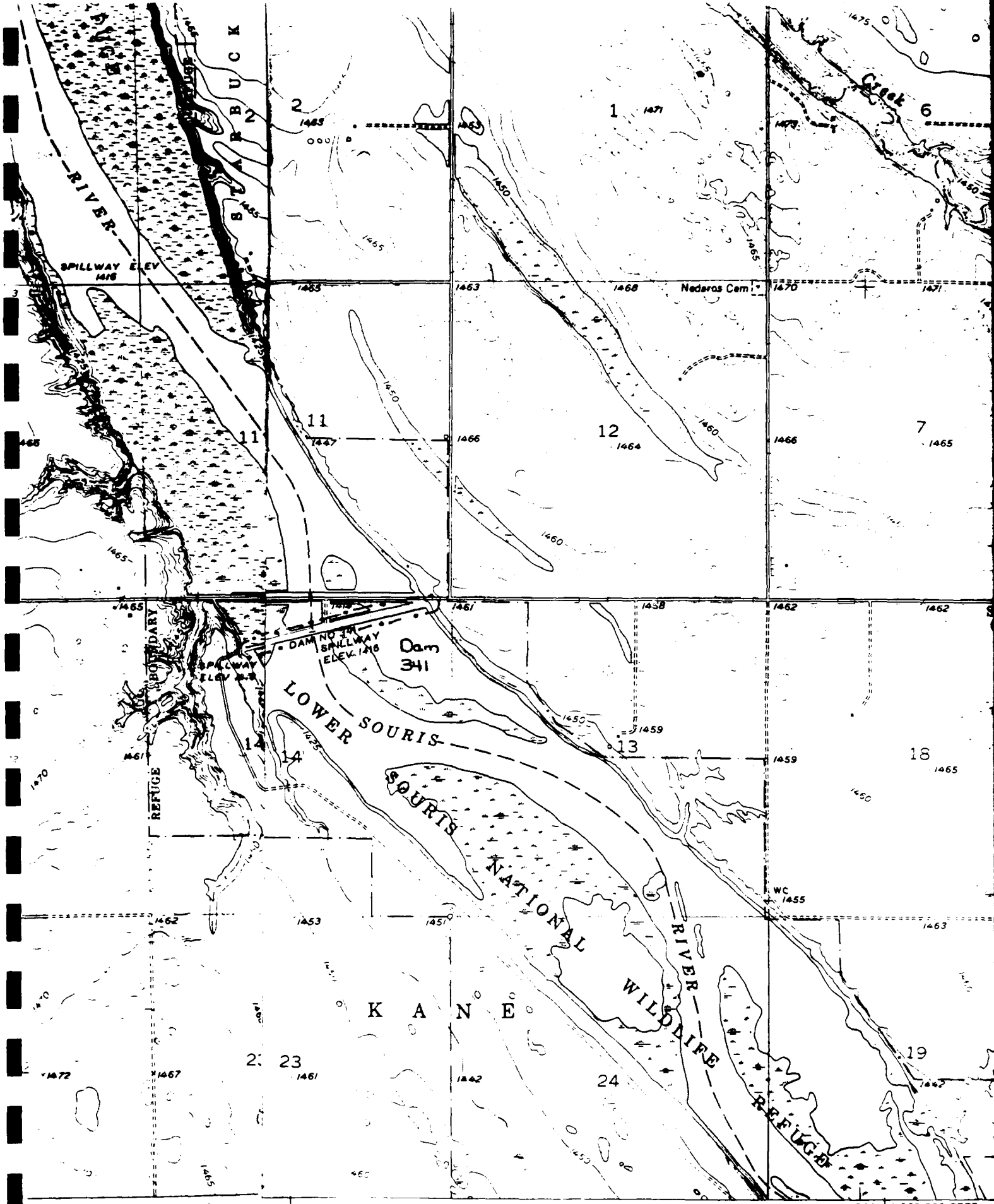
1. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 341, J. Clark Salyer National Wildlife Refuge, McHenry County, North Dakota, Federal Inventory Number ND 003326," June 1984, p. 10, report prepared for the U.S. Fish and Wildlife Service, copy on file at the Headquarter Offices of the J. Clark Salyer National Wildlife Refuge, North Dakota.

2. Ibid., p. 11.

3. see drawing M-No. DAK. 3-30, "Lower Souris: Improvements to Dam 357 Spillway," July 1946, included as "Lower Souris: Improvements to Dam 357 Spillway," July 1946, included as attachment C-11 to Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam #357, J. Clark Salyer National Wildlife Refuge, Bottineau County, North Dakota, Federal Inventory Number ND 00325," June 1984.

4. Details of alterations to the outlet works are provided by drawing M-No. Dak. 3-321, "Lower Souris: Raising Radial Gate Control Structures on Dams 326, 332, 341, & 357," Sept. 1949, revised July 1950, included as attachment C-12 to Marshall and Clayton, "Inspection Report, Dam 357."

5. Mouse River Farmers Press, 4 April 1935, p. 1.



GEOLOGICAL SURVEY WASHINGTON D. C.

162°30'

R 79 W R 78 W 50' 1920 000 FEET

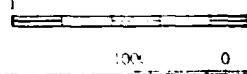
ROAD CLASSIFICATION

WEATHER ROADS DRY WEATHER ROAD
 GRADE GRADE Improved dirt...
 GRADE GRADE Unimproved dirt...

Mapped, edited, and published by the Geological Survey
 as part of the Department of the Interior program
 for the development of the Missouri River Basin

Control by USGS and USC&GS

13°



NDCRS SITE FORM
ARCHITECTURAL SITES

Page 1

SITS # 3.2 B.V. 0.0.0.2

State County Site Number

Field Code RT.1.8.9.5.0.5

Site Name

LOWER SOURIS DAM 3.5.7

Field Code

Site Name

Map Quad

1.6.4

Map Quad

1.6.4

LTL <input checked="" type="checkbox"/>	Twp <u>1.6.4</u>	R <u>7.9.W</u>	Sec <u>3.1</u>	QQQ <input type="checkbox"/>	QQ <u>3</u>	Q <u>7</u>
LTL <input checked="" type="checkbox"/>	Twp <u>1.6.4</u>	R <u>7.9.W</u>	Sec <u>3.1</u>	QQQ <input type="checkbox"/>	QQ <u>7</u>	Q <u>6</u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <input type="checkbox"/>	QQ <u> </u>	Q <u> </u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <input type="checkbox"/>	QQ <u> </u>	Q <u> </u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <input type="checkbox"/>	QQ <u> </u>	Q <u> </u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <input type="checkbox"/>	QQ <u> </u>	Q <u> </u>

1. N
2. E
3. S
4. W
5. NE
6. SE
7. SW
8. NW
9. C

City

Street #

Street #

Street Name

Street Name

of Features 0.1

FEATURE DATA

0.1 Feature #

1.2 Feature Type

7 Condition

1.9.3.7 Const Date

0.6 Context

1 Significance

 Feature Date

3 Plan Shape

PORCH

BUILDING MATERIALS

☐ Original
☐ Addition/Altered
☐ Removed/None

0.8 Structure System
☐ Primary Exterior Finish
☐ Secondary Exterior Finish

☐ Main Entrance

☐ Ethnic
☐ Style

1 Builder
☐ Engineer
☐ Designer Architect

0.4.1.8.1.8.9 Fieldwork Date

 LINEAR SHAPE Other Information

<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<input type="checkbox"/> MS Number
<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<input type="checkbox"/> MS Number
<input type="checkbox"/> CR Type	<input type="checkbox"/> Verified Site	<input type="checkbox"/> Non-Site	<input type="checkbox"/> E C F <input type="checkbox"/> T F
<input type="checkbox"/> State Registry	<input type="checkbox"/> National Register		

Coder RT.1.8.9.5.0.5

Date Coded 1.11.81

I. SITE I.D.

II. SITE DESCRIPTION

SHSND USE

NDCRS ARCHITECTURAL SITE FORM

page 2

Field Code RTI89JCS05SITS Number 32BUFeature No. 1Name in Name Block Lower Souris Dam 357

<u>BASEMENT</u>	<u>FOUNDATION MATERIALS</u>	<u>STORIES</u>	<u>CORNICE</u>	<u>ROOF TYPE</u>	<u>DATING METHOD</u>
<input type="checkbox"/> yes	<input type="checkbox"/> Brick	<input type="checkbox"/> 1	<input type="checkbox"/> Metal	<input type="checkbox"/> Gable	<input type="checkbox"/> Plat Maps
<input type="checkbox"/> no	<input type="checkbox"/> Concrete Block	<input type="checkbox"/> 1-1/2	<input type="checkbox"/> Brick	<input type="checkbox"/> Hipped	<input type="checkbox"/> County Atlas
<input type="checkbox"/> unknown	<input type="checkbox"/> Fieldstone	<input type="checkbox"/> 2	<input type="checkbox"/> None	<input type="checkbox"/> Deck	<input type="checkbox"/> Date Block
<input type="checkbox"/> other	<input type="checkbox"/> Cut Stone	<input type="checkbox"/> 2-1/2	<input type="checkbox"/> Wood	<input type="checkbox"/> Gambrel	<input type="checkbox"/> Sanborn Map
<u>n/a</u>	<input type="checkbox"/> Poured Concrete	<input type="checkbox"/> 3	<input type="checkbox"/> Other	<input type="checkbox"/> Flat	<input type="checkbox"/> Topo Map
	<input type="checkbox"/> Refaced	<input type="checkbox"/> Other	<u>n/a</u>	<input type="checkbox"/> Other	<u>1</u> Other
<u>WINDOWS</u>	<input type="checkbox"/> Unknown	<u>n/a</u>			<u>FWS records</u>
	<input type="checkbox"/> Other				
<input type="checkbox"/> Original	<u>n/a</u>				
<input type="checkbox"/> Altered					

FEATURE DESCRIPTION & STATEMENT OF INTEGRITY:

Dam 357 is the farthest north, or downstream, of the five dams at the J. Clark Salyer refuge. It is located about one mile south of the United States-Canada border. The dam is nearly 25 miles northwest, or downstream of the refuge headquarters and is situated in Bottineau County (S 1/2 Sec. 31, T164N, R79W).

Dam 357 consists of an homogeneous earthfill embankment, an emergency spillway, and outlet works. The crest length of the entire structure is about 3070 feet. The west half, approximately, of the dam is oriented along an east/west axis while the east section of the structure lies on a southeast/northwest axis. During construction of the dam, fill for the embankment was hauled to the site by truck¹ and apparently consisted mostly of gravel. In the late 1940s, flood water topped the embankment and in 1951 three additional feet of earthfill was laid along the crest.² The crest of the embankment currently is 12 feet wide, 16 feet high, and at an elevation of 1418.6 feet. The upstream face of the embankment has a slope of 5:1 and is covered by river cobbles. The downstream slope is 4:1 and is vegetated with grass (see continuation form, pages 4 and 5).

SIGNIFICANCEx SIGNIFICANT☐ NOT SIGNIFICANT

<input type="checkbox"/> Work of Master	<input type="checkbox"/> Visual Landmark	<input type="checkbox"/> Too new
<input type="checkbox"/> High Artistic Values	<input type="checkbox"/> Associated with significant event	<input type="checkbox"/> Lacking integrity
<u>x</u> Rep. of type, period,	<u>x</u> Associated with devel. of locality	<input type="checkbox"/> Not High Style
method of construction	<input type="checkbox"/> Associated with significant person	<input type="checkbox"/> Other
<input type="checkbox"/> Other		

JUSTIFICATION OF SIGNIFICANCE:

Dam 357 is significant because of its historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942), as well as being an excellent representative example of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillway weir is visually the most evident element of this design type.

Recorded by: Mary E. McCormick, RTI, Butte, MT

Date: July 11, 1989

NDCRS ARCHITECTURAL SITE FORMS

Field Code RTI89JCS05

Page 3

SITS Number 32BU

ACCESS: From the southwest end of Landa take the county highway west 1/2 of a mile, north 1 mile, and then west 1 mile; turn north onto gravel road and continue north 4 miles; turn west and continue about 1/8 of a mile to T-intersection with a two track road; turn north onto said two track road and proceed for just over 1 mile to T-intersection with another two track road; turn west and proceed about 1/8 of a mile to the east end of Dam 357.

DESCRIPTION OF SITE: Dam 357 is located on the J. Clark Salyer National Wildlife Refuge which is situated along a winding 75-mile stretch of the Souris River in Bottineau and McHenry counties in north-central North Dakota. Originally established in the mid-1930s as the Lower Souris National Wildlife Refuge, this refuge was renamed in 1967 in honor of J. Clark Salyer, II, the chief of the national wildlife refuge program from 1934-1961. The 58,700-acre refuge is largely comprised of native prairie lands, with some wooded bottom lands, and aspen and brush-covered sandhills, as well as over 21,000 acres of restored river ponds, marshes, and wet meadows. Water developments in the refuge were established, and are maintained, by a network of five major dams (nos. 320, 326, 332, 341, and 357) as well as other diversion structures including two small masonry dams, and several dikes, levees and channels. The five major dams are apart spaced so that they extend nearly the entire length of the refuge from near Upham, North Dakota, north to the United States-Canada border. Dam 357 retains historical integrity and is in excellent condition.

FEATURES: Feature 1: Dam 357

SITE AREA: 36,423 square meters

OWNER'S NAME, ADDRESS, PHONE #: U.S Fish and Wildlife Service, J. Clark Salyer National Wildlife Refuge Headquarters, Upham ND, (701) 768-2548

PROJECT TITLE: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project

REPORT TITLE: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salyer National Wildlife Refuge.

PROJECT SUPERVISOR: Fredric L. Quivik, Renewable Technologies, Inc., Butte, MT

REPORT AUTHOR: Mary E. McCormick and Fredric L. Quivik

STATEMENT OF SIGNIFICANCE AND INTEGRITY: During the New Deal era (1933-1942) of the Roosevelt administration the Federal Government undertook extensive measures to reestablish the nation's once abundant migratory bird populations through the development of a system of national wildlife refuges under the direction of the Bureau of Biological Survey, the forerunner agency to the U.S. Fish and Wildlife Service. One of the first areas select for refuge development was the Souris River Valley of North Dakota, which until 1912 when its bottom lands were had served as prime feeding and breeding grounds for migratory birds. The government's plan for restoration of bird habitat along the Souris River called for development of two refuges: a 58,7000 refuge located along the downstream reaches of the river in McHenry and Bottineau counties, and originally called the Lower Souris National Wildlife Refuge (now known as the J. Clark Salyer refuge); and the about (see continuation form, page 6)

Recorded by Mary E. McCormick, RTI

Date July 1989

Item:

FEATURE DESCRIPTION AND STATEMENT OF INTEGRITY (page 2)

The emergency spillway is located at the east end of the dam and lies along the crest of the embankment. The spillway is a 700-foot long weir wall with a 2-bay stop log structure located near its midpoint. When it was originally constructed, the weir wall was of stone masonry construction with stone masonry wing walls, and a stone masonry apron and riprap below the wall's downstream edge. In the late 1940s, the stone masonry wall was modified by the addition of a concrete cap, and concrete buttress spaced 12-feet on center along the its downstream face.³ Two of concrete buttresses are inscribed with the phrase "dedicated to a duck" and the name "C.J. Henry." (C.J. Henry was a junior biologist at the refuge when work on the project first began in 1935-36, and by 1939 he was the refuge manager).

The main outlet works for the dam span the main river channel and is located about 900 feet west-northwest of the right abutment. It consists of a reinforced concrete structure with three radial gates. The concrete structure is comprised of four, 18-foot long by 16-foot high walls (two end walls and two piers), which serve to support the radial gates. The downstream wing walls of the concrete structure are constructed of interlocking, corrugated sheet piling and upstream wing walls are concrete.

The radial gates each consist of a corrugated steel face (16 feet wide by 10 feet high) with channel section supports and angle section radials. The outer face of each gate is set along the upstream side of the concrete structure. There is no intake to the gates, however, the concrete walls between the gates extend downstream from them and serve as outlet structures. The radial gates are operated by manual hoists and the hoist control for each respective gate is mounted on top an adjacent concrete wall. Access to the hoist controls is provided by a cantilevered walkway which lies along the concrete structure's upstream edge. The walkway is secured to the structure by angle section knee-braces and consists of a plank deck with angle-section railing. Along its downstream side, the concrete structure also supports a concrete beam walkway which is protected by angle-section railing. In 1951, the original height of the concrete structure was raised 3 feet by concrete caps which were added to the top of each of the end walls and piers, as well as both of the upstream wing walls. At this same time, the gate hoist controls, and the upstream and downstream walkways were removed and re-installed in their current locations.⁴

Soon after the dam was originally constructed, a low level outlet was installed which consists of a 36-inch diameter concrete pipe. Located near the left abutment, the pipe extends through the embankment and at its upstream opening has a concrete bulkhead with a slide gate control.⁵ The pipe was apparently plugged several years ago.⁶

In the mid-1960s, another low flow outlet was constructed to the west of the main outlet works. This modern structure was designed to control release flows to Canada as mandated by international treaty and consists of a concrete bulkhead with slide gates, and two conduits.⁷ The concrete bulkhead is located on the upstream side of the embankment and is flanked by retaining walls which extend upstream and serve as intake to it. A trash rack is hinged on the upstream face of the bulkhead. The top of the bulkhead is open but protected by steel grating. The bulkhead structure proper is about 8 feet wide and 7 feet long, and is divided into two chambers by an 8-inch thick concrete wall. At

Field Code: RT189JCS05

Continuation Form

Site Number 328U

Item:

FEATURE DESCRIPTION AND STATEMENT OF INTEGRITY (page 2)

the upstream end of each of the chambers is an "orifice" slide gate (30 inches wide and 24 inches high) while at the downstream end of the each of the chambers is a "turnout" slide gate (24 inches in diameter). Each of the gates is set in 4-foot frames with non-projecting stems. The "turnout" slide gates each open into a concrete pipe (24 inches in diameter). Both of the pipes extend through the embankment and discharge on the downstream side of the dam.

Regardless of alterations to all three of its major components, the integrity of this dam remains good. The basic form of the embankment, spillway and outlet works is intact, and their overall function within the operation of the dam is unchanged.

Field Code: RTI89JCS05

Continuation Form

Site Number 32BU

Item:

STATEMENT OF SIGNIFICANCE AND INTEGRITY (page 3)

220 river miles upstream in Ward and Renville counties, the 32,000 acre Upper Souris Wildlife Refuge. Creation of suitable habitat conditions at each of the refuges was achieved by construction of a series of earthfill dams, as well as other water diversion structures, that impounded the Souris River into a network of ponds, marshes and wet meadows. Water developments at the Upper Souris refuge also included a 10,000 acre storage reservoir to regulate and sustain water supplies to the wetlands developed at both of the refuges. The designs and specifications for all three of the Upper Souris refuge dams (Dams 83, 87, and 96) and all five of the Lower Souris refuge dams (Dams 320, 326, 332, 341, and 357) were prepared by the U.S. Department of Agriculture, Bureau of Agricultural Engineering. Dam 357 on the J. Clark Salyer refuge was constructed in 1936-37, by the CCC.⁸

Regardless of alterations to all three of its major components, the integrity of Dam 357 remains good. The basic form of the embankment, spillway and outlet works are intact, and their overall function within the operation of the dam is unchanged.

Dam 357 is eligible for listing on the National Register of Historic Places under Criterion A for its significant historical association with the development of the national wildlife refuge system during the New Deal era (1933-1942). Construction of this dam, as well as the seven other earthfill dams, along the Souris River in North Dakota in the mid-1930s enabled the restoration of thousands of acres of waterfowl habitat in both the J. Clark Salyer and Upper Souris wildlife refuges and provided relief work during a time of severe economic depression. Feeding, breeding, and nesting grounds maintained by these eight dams represent some of the most productive waterfowl areas in the United States and as an interrelated system, the J. Clark Salyer and Upper Souris refuges are considered a key element within the national wildlife refuge program. The J. Clark Salyer National Wildlife Refuge itself is often described as the "gem" of the nation's entire refuge system.

Dam 357 is also eligible for listing on the National Register of Historic Places under Criterion C as excellent representative examples of dams designed by the federal government during the New Deal era for conservation projects, including the restoration of wildlife habitat. The use of stone masonry construction to build the spillways for earthfill dams is visually the most evident element of this design type. Although extremely labor intensive, this type of construction proved cost effective in situations where local materials and an inexpensive labor force were readily available, and was often used for public work projects throughout the New Deal era.

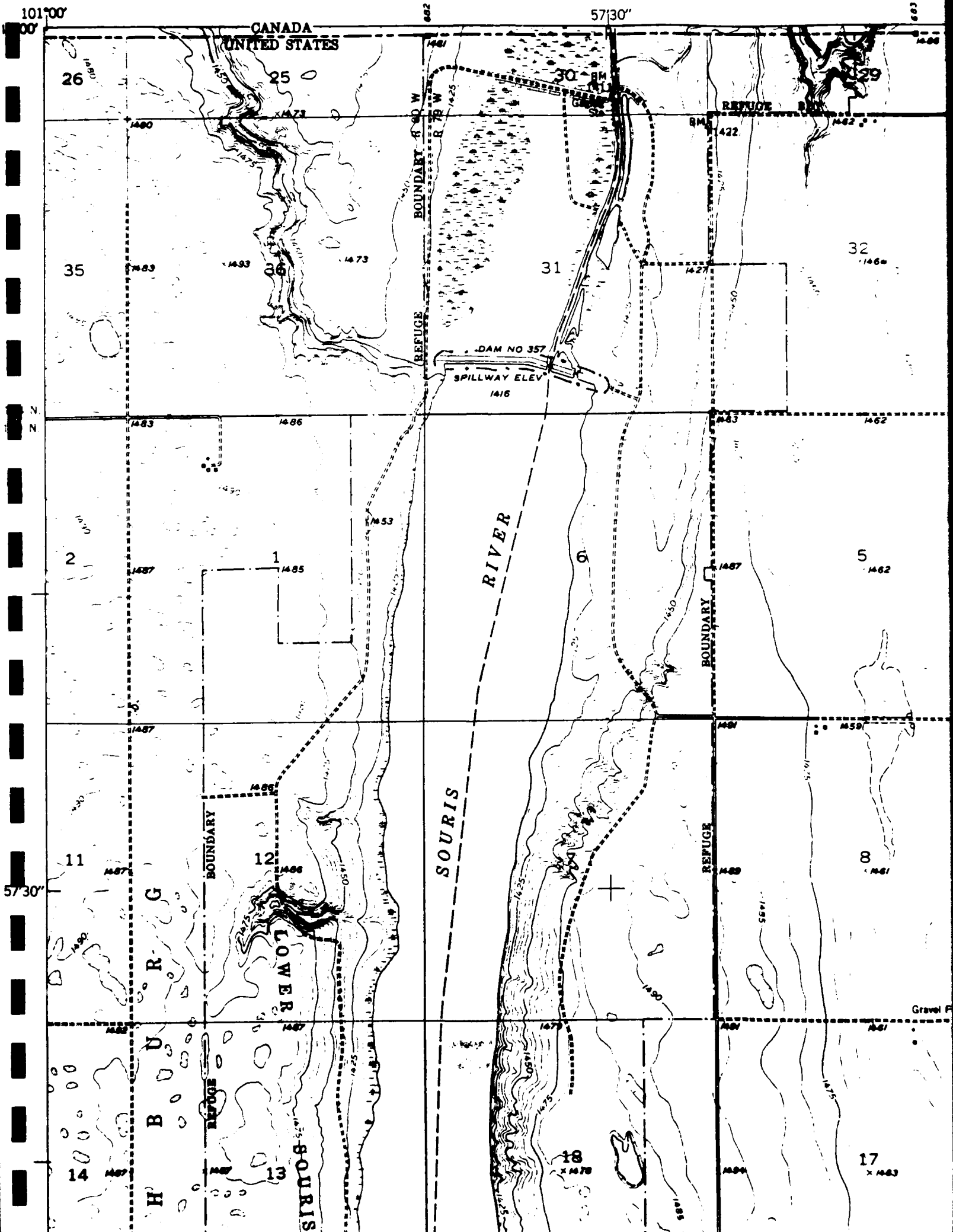
Dam 357 does not meet registration requirements for listing on the National Register of Historic Places under Criteria B because it is not associated with an individual who contributed significantly to development of the national wildlife refuge system.

ENDNOTES

1. Marshall Fox and Terry Clayton, "Inspection Report, J. Clark Salyer Dam # 357, J. Clark Salyer National Wildlife Refuge, Bottineau County, North Dakota, Federal Inventory Number ND 003325" p. 11.

2. Ibid.

3. see drawing M-No. Dak, 3-30, "Lower Souris: Improvements to Dam 357 Spillway," July 1946, included as attachment C-11 to, Fox and Clayton. "Inspection Report, Dam 357."
4. Details of alterations to the outlet works are provided by drawing M-No. Dak. 3-321, "Lower Souris: Raising Radial Gate Control Structures on Dams 326, 332, 341, & 357," Sept. 1949, revised July 1950, included as attachment C-12 to Fox and Clayton, "Inspection Report, Dam 357."
5. U.S. Department of Agriculture, Bureau of Agricultural Engineering, drawing M-N.Dak: 3-24, "Lower Souris Exten.: Pipe & Gate Outlet Control at Dam No. 357," included as attachment C-10 to Fox and Clayton, "Inspection Report: Dam 357."
6. Fox and Clayton, "Inspection Report: Dam 357," p. 10.
7. Ibid., p. 10, and attachment C-14, U.S Department of the Interior, Fish and Wildlife Service, Drawing no. 3R-No, Dak.-165-54, "Lower Souris: Water Control Structure Plan and Elevation," December 1965, revised October 1966.
8. U.S. Department of Agriculture, Bureau of Biological Survey, "Narrative Reports for the Lower Souris Wildlife National Refuge," April 1937, p. 3.



NDCRS SITE FORM
HISTORICAL ARCHEOLOGICAL SITES

Page 1

I. SITE I.D.

SITS # 32 BU 0009
State County Site Number

Field Code BT132J2526 Site Name CCC CAMP PING
Field Code _____ Site Name _____

Map Quad _____
Map Quad _____

LTL <input checked="" type="checkbox"/>	Twp <u>10S</u>	R <u>7E</u>	Sec <u>20</u>	QQQ <u>1</u>	QQ <u>8</u>	Q <u>8</u>
LTL <input checked="" type="checkbox"/>	Twp <u>10S</u>	R <u>7E</u>	Sec <u>20</u>	QQQ <u>8</u>	QQ <u>5</u>	Q <u>3</u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>
LTL <input type="checkbox"/>	Twp <u> </u>	R <u> </u>	Sec <u> </u>	QQQ <u> </u>	QQ <u> </u>	Q <u> </u>

II. SITE DESCRIPTION

FEATURE TYPE	CULTURAL MATERIAL	<u>44</u> Site Type
<input checked="" type="checkbox"/> Cm Scatter	<input type="checkbox"/> Bone	<u>60</u> Context
<input checked="" type="checkbox"/> Chimney	<input type="checkbox"/> Ceramics	<u>31000</u> Site Area
<input checked="" type="checkbox"/> Depression	<input type="checkbox"/> Charcoal	m. x m.
<input checked="" type="checkbox"/> Dump	<input type="checkbox"/> Cloth	<u> </u> Cultural Depth cm.
<input checked="" type="checkbox"/> Earthworks	<input type="checkbox"/> Faunal Remains	<input checked="" type="checkbox"/> Depth Indicator
<input checked="" type="checkbox"/> Fortification	<input checked="" type="checkbox"/> Fire Cracked Rock	Occupation Date
<input type="checkbox"/> Foundation	<input checked="" type="checkbox"/> Floral Remains	Begin <u>1935</u> End <u>1942</u>
<input checked="" type="checkbox"/> Grave	<input type="checkbox"/> Glass	Basis For Dating
<input checked="" type="checkbox"/> Hearth	<input type="checkbox"/> Hide, Hair, Fur	<u>10</u> Cm Density
<input checked="" type="checkbox"/> Machinery	<input type="checkbox"/> Human Remains	<input checked="" type="checkbox"/> Isolated Find
<input checked="" type="checkbox"/> Quarry/Mine	<input type="checkbox"/> Masonry	
<input checked="" type="checkbox"/> Rock Art	<input type="checkbox"/> Metal	
<input checked="" type="checkbox"/> Trail	<input type="checkbox"/> Plastic	
<input checked="" type="checkbox"/> Wreck	<input type="checkbox"/> Rubber	
<input type="checkbox"/> Other	<input type="checkbox"/> Shell	
	<input type="checkbox"/> Wood	
	<input type="checkbox"/> Other	

III. ENVIRONMENT

<input checked="" type="checkbox"/> Landform 1	<u>15</u> Landform 2	<input checked="" type="checkbox"/> Slope/Exposure	<u>2</u> Ecosystem
<input type="checkbox"/> Landform 1	<u> </u> Landform 2	<input type="checkbox"/> Slope/Exposure	<u> </u> Ecosystem
Elevation	Drainage System	View, Degree	View, Distance
<u>43.6</u> m.	<u>09.010003</u>	<u>4</u>	<u>1</u>
Dist Perm Water	Perm Water Type	Dist Seas Water	Seas Water Type
<u> </u> m.	<u>3</u>	<u> </u> m.	<u> </u>

IV. C.R.M.

<u>2</u> Ownership	<input type="checkbox"/> Ownership
<u>0411187</u> Fieldwork Date	<u> </u> Fieldwork Date
<u>3</u> Site Condition	<input type="checkbox"/> Collection
<input checked="" type="checkbox"/> Test/Probe	<input checked="" type="checkbox"/> Excavation
Additional Information	<u>1</u> Management Recommendation

SHSND USE

<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<u> </u> MS Number
<input type="checkbox"/> Soil Association	<input type="checkbox"/> Ecozone	<input type="checkbox"/> Area Signf	<u> </u> MS Number
<input type="checkbox"/> CR Type	<input type="checkbox"/> Verified Site	<input type="checkbox"/> Non-Site	<input type="checkbox"/> E C F <input type="checkbox"/> T F
<input type="checkbox"/> State Registry	<input type="checkbox"/> National Register		

Coder MEM

Date Coded 7-11-8

1. N
2. E
3. S
4. W
5. NE
6. SE
7. SW
8. NW
9. C

NDCRS ARCHEOLOGICAL AND HISTORICAL SITE FORMS

Field Code RTI89JCSC6

Descriptive Section

SITS Number 39BU

Page 2

1. Access: From Kramer take the county highway west 2 miles, south 1 mile, and then west 3/4 a mile; turn south onto two track road and continue about 1/8 of a mile south, the site is mostly west of the road.

2. Description of Site: The site of CCC Camp Ding is located in Bottineau County (NW 1/4 Sec. 20, T160N, R78W) on the J. Clark Salyer National Wildlife Refuge. The site is situated immediately east of the right abutment of refuge Dam 332 and lies on a gentle, southwest-facing slope along the west edge of marshes created by the impoundment of the Souris River.

Camp Ding was established in July 1935 to house CCC Company 766 which was assigned to the Bureau of Biological Survey to assist in development of the J. Clark Salyer National Wildlife Refuge. During its period of occupation (1935-1942), CCC Camp Ding contained nearly over 30 buildings that included domestic structures for camp personnel as well as auxiliary facilities such as work shops, garages, and storage buildings. Most, if not all, of these buildings were wooden structures on concrete foundations. About five years after the camp was abandoned by the CCC, the Fish and Wildlife Service in 1946 transferred the camp buildings on a 50-50 basis to the Towns of Minot and Kramer. City officials at Minot requested the camp buildings to provide temporary housing for workers constructing the Veterans Hospital at Minot and apparently located them on 4-H property adjacent to the city fairgrounds (see continuation form, page 4).

The remains of 17 buildings, or structure (Features 1-17), exist at the site of CCC Camp Ding today and primarily consist of the remnants of concrete foundations (Figure). Following is a descriptive list of the 17 site features. The historic function is speculated for a few of features based on interpretations made from CCC records which provide a list of all the camp facilities by function and overall dimensions.

Feature 1: consists of a semi-circular mound (18 feet east to west by 35 feet north to south) with remnants of a low concrete foundation wall along its east edge.

Feature 2: consists of a 3-walled stone masonry structure (4 feet east to west by 7 feet north to south). Extending across the top width of the structure are parallel, steel square bars.

Feature 3: consists of a concrete slab foundation (7 feet east to west by 18 feet north to south). Embedded at the northeast corner of the slab is a metal pipe.

3. Description of Cultural Materials (Quantify and identify): 2-3 metal cook pots; 3-5 metal cans; 3-5 glass jars; 2-3 metal stove parts; 2 metal barrels; 3-5 fragments of clear glass; and 3-5 fragments of metal.

15-20 # of items of cultural material observed

0 # Collected

4. Artifact Repository

5. Description of Subsurface Testing: due to the sensitive and protective nature of the refuge grounds, no subsurface testing was conducted

Recorded by Mary E. McCormick

Date July 1989

Item No. 2. Description of Site (page 2)

Feature 4: is a standing concrete structure which likely represents the remains of a larger building (such as the ice box for the camp kitchen). The rectangular structure (5 feet 5 inches east to west by 7 feet north to south) has a flat roof, and is set a concrete base formed by 2 feet 6 inch high walls. On the north wall of the structure is an open doorway. The structure interior is an open room with wood shelving on the walls and a light fixture centered on the ceiling. Also inside the structure is scattered debris, including metal cook pots, cans, and glass jars.

Feature 5: consists of a concrete slab foundation (20 feet east to west by 40 feet north to south)

Feature 6: consists of a concrete slab foundation (30 feet east to west by 50 feet north to south).

Feature 7: consists of a shallow, stone-lined pit or basin (4 feet east to west by 8 feet north to south). Along the west edge of the pit is a steel pipe embedded into a low stone masonry pile.

Feature 8: consists of four, parallel concrete walls which likely represents the foundation remains of a barracks or the camp headquarters building. Overall feature dimensions are 60 feet north to south by 40 feet east to west.

Feature 9: consists of several low concrete walls which form a rectangular foundation (10 feet east to west by 42 feet north to south). At the southwest end of these foundation there is a 10-foot by 10-foot concrete slab which is adjoined to the south by a 15-foot by 20-foot concrete slab. This feature may represent the remains of the camp kitchen and mess hall.

Features 10-14: these five features each consist of three, parallel concrete walls. Each has overall dimensions of 60 feet north to south by 40 feet east to west, and each likely represent the foundations remains of a barracks.

Feature 15: consists of two rectangular concrete slabs which are separated by two low concrete wall. The western-most slab has three pipe drains at the center while the eastern-most slab had ten pipe drains evenly spaced along its south edge. This feature (100 feet east/west by 20 feet north/south) likely represents the remains of the camp's bath, latrine and laundry facility.

Feature 16: consists of 5-tiered circular fountain constructed of poured concrete. The fountain is about 16 feet in diameter, extends about 5 feet below the ground surface, and is encompassed by a circular metal railing. Protruding from the top tier of the fountain is a metal pipe.

Feature 17: consists of a concrete slab (10 feet by 10 feet).

Cultural debris is sparsely scattered on the site surface and includes metal and glass fragments, metal stove parts, and a few metal barrels. The site area is overgrown with tall, mixed grass and has a few trees.

NDCRS ARCHEOLOGICAL AND HISTORICAL SITE FORMS

Field Code RTI8 JCS06

Descriptive Section

SITS Number 39 BU

Page 3

6. Current Use of Site: wildlife refuge

7. Owner's Name/Address: U.S Fish and Wildlife Service, J. Clark Salyer National Wildlife Refuge Headquarters, Upham, ND, (701) 768-2548

8. Vegetation: mixed grasses

9. Cover (% of visible ground): 0-25%

10. Man-hours spent on site: 3

11. Project Title: U.S. Army Corps of Engineers, St. Paul District, Souris River Basin Project
P.I. Fredric Quivik

12. Report Title: A Determination of Eligibility to the National Register of Historic Places for Select Historic Properties Along the Souris River in North Dakota: Three Earthfill Dams (Nos. 83, 87, and 96) and CCC Camp Maurek on the Upper Souris National Wildlife Refuge and Five Earthfill Dams (Nos. 320, 326, 332, 341, and 357) and CCC Camp Ding on the J. Clark Salyer National Wildlife Refuge. Author: Mary E. McCormick and Fred Quivik, Renewable Technologies, Inc., Butte, MT.

13. Other Published References

14. Description of Collections Observed: none

15. Owner-Address of Collections Observed: n/a

16. Statement of Integrity: Camp Ding has lost all integrity of design, materials, workmanship, feeling, and association.

17. Statement of Significance: The site of CCC Camp is not eligible for listing on the National Register of Historic Places. Because the camp has lost all architectural integrity, it no longer retains the ability to recall its historic identity or character as a CCC facility. Furthermore, because information about CCC camps is extremely well documented in the written record, neither of the camp sites has the potential to yield additional important information.

18. Comments/References: historical information on Camp Ding was derived from, "Narrative Reports for the J. Clark Salyer National Wildlife Refuge," 1935-1942, on file at the refuge headquarters; the "Official Annual 1937: Civilian Conservation Corps, North Dakota Seventh Corps Area," on file at the headquarter offices for the J. Clark Salyer National Wildlife Refuge; and the Records of the CCC-State Directors Correspondence, Records Group 35, National Archives, Washington, D.C.

Recorded by Mary E. McCormick, RTI

Date July 1989

